Service Manual

Stereo Cassette Tuner Amplifier
SA-007

DOLBY SYSTEM

SA-007D

SA-007T

SA-007C

SA-007P

Color

(K)...Black Type
(S)...Silver Type

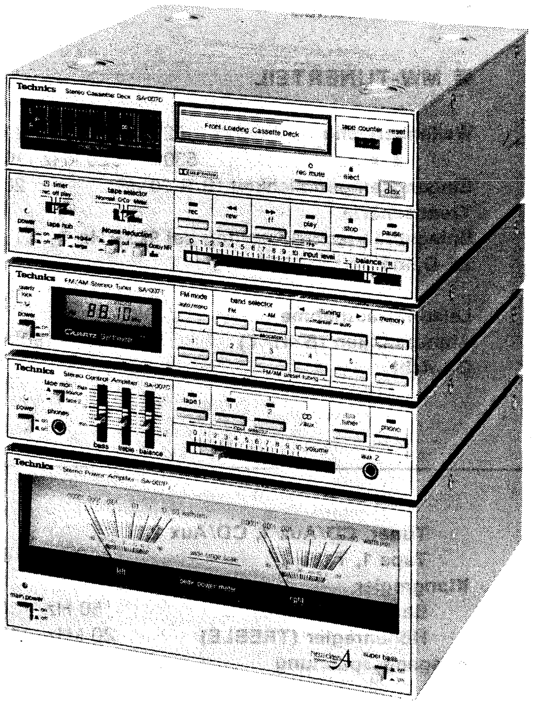
Color	Area
(K) (S)	[EGA]...F.R. Germany.

System

SA-007D:	Dolby NR/dbx noise reduction logic control type cassette deck.
SA-007T:	Quartz synthesizer tuner capable of 6 stations (FM and AM each) preset tuning.
SA-007C:	Control amplifier with power supply built in for preset tuning and input selector circuit memory reserving.
SA-007P:	New class A power amplifier with radiation fan and power supply of this unit.

Note:

- **This system obtaines power supply from power amplifier (SA-007P). Be sure to prepare power amplifier for repair of each equipment.**
- Use optional graphic equalizer model SH-007E. Power supply of model SH-007E is built into power amplifier model SA-007P.
- Noise reduction system manufactured under license from Dolby Laboratories Licensing Corporation. "Dolby" and the double-D symbol are trade marks of Dolby Laboratories Licensing Corporation.
- The term dbx is a registered trademark of dbx Inc.
- If a tape which was recorded through the dbx noise-reduction system is played back without using the dbx system, the sound will be ragged and distorted.



■ TECHNISCHE DATEN

(Die technischen Daten können infolge von Verbesserungen ohne Ankündigung geändert werden.)

(DIN 45 500)

Cassettendeck (SA-007D)

■ TONBANDTEIL

Typ	Stereo-Cassettendeck
Spurlage	4 Spuren/2 Kanäle
Tonkopfbestückung	
Aufnahme/Wiedergabe	Tonkopf aus Hartpermalloy
Löschen	2-Spalt-Löschkopf aus Ferrit
Laufwerk	
Capstanmotor	elektronisch geregelter Gleichstrommotor
Bandumspulmotor	Gleichstrommotor
Aufnahmesystem	Wechselstrom-Vormagnetisierung
Vormagnetisierungsfrequenz	85 kHz
Löschsystem	Wechselstrom-Löschung
Bandgeschwindigkeit	4,8 cm/s
Leistungsbandbreite	
Metal	20 Hz~17 kHz 35 Hz~17 kHz (DIN)
CrO2	20 Hz~16 kHz 35 Hz~16 kHz (DIN)
Normal	20 Hz~15 kHz 35 Hz~15 kHz (DIN)
Geräuschspannngsabstand	(Signalpegel=max. Aufnahmenpegel, CrO2-Band)
mit Dolby-NR-System	65 dB (bewertet bei 1 kHz 3% 3. Verzerrung)
ohne Dolby-NR-System	56 dB (bewertet bei 1 kHz 3% 3. Verzerrung)
mit dbx-System	90 dB
Dynamikbereich (CrO2-Band)	110dB (1 kHz)
Gleichlaufschwankungen	0,05% (bewertet) ±0,18% (DIN)
Umspulzeit	ca. 90 Sek. (für Cassette C-60)
Leistungsaufnahme	18 W
Abmessungen (B×H×T)	180 × 79 × 174 mm
Gewicht	2,1 kg

Technics

Matsushita Electric Trading Co., Ltd.
P.O. Box 288, Central Osaka Japan

Tuner (SA-007T)

UKW-TUNERTEIL

Wellenbereich	87,5 ~ 108,0 MHz
Eingangsempfindlichkeit	
S/R 30 dB	1,3μV (75 Ω)
S/R 26 dB	1,2μV (75 Ω)
S/R 20 dB	0,9μV (75 Ω)
Nutzempfindlichkeit nach IHF	1,5μV (nach IHF '58)
Stereoumschaltschwelle bei 46 dB nach IHF	22 μV/75 Ω
Gesamtklirrfaktor	
Mono	0,15%
Stereo	0,3%
Geräuschabstand	
Mono	70 dB (78 dB nach IHF)
Stereo	65 dB (72 dB nach IHF)
Frequenzgang	20 Hz ~ 15 kHz (+0,5 dB ~ −1,5 dB)
Trennschärfe bei Störsender	70 dB ±400kHz
Einfangverhältnis	±1 dB
Spiegelfrequenz-Dämpfung bei 98 MHz	75 dB
ZF-Dämpfung bei 98 MHz	100 dB
Ansprechdämpfung auf Nebenfrequenzen bei 98 MHz	100 dB
MW-Unterdrückung	55 dB
Übersprechdämpfung	
1 kHz	40 dB
10 kHz	30 dB
Trägerrest	
19 kHz	−60 dB
38 kHz	−70 dB
Kanalabweichung (250 Hz ~ 6300 Hz)	±1,0 dB
Begrenzereinsatz	1,2 μV
Bandbreite	
ZF-Verstärker	180 kHz
UKW-Demodulator	1000 kHz
Antennenanschluß	75 Ω (unsymmetrisch)

MW-TUNERTEIL

Wellenbereiche	522 ~ 1611 kHz (9-kHz-Schritte) 530 ~ 1620 kHz (10-kHz-Schritte)
Eingangsempfindlichkeit (S/R 20 dB)	20 μV, 300 μV/m
Trennschärfe	55 dB
Spiegelfrequenz-Dämpfung bei 999 kHz	40 dB
ZF-Dämpfung bei 999 kHz	60 dB

Leistungsaufnahme	6 W
Abmessungen (B×H×T)	180 × 40 × 186 mm
Gewicht	0,7 kg

Steuerverstärker (SA-007C)

Gesamtklirrfaktor	
Phono (PHONO)	20 Hz~20 kHz, 0,007% (1 V)
Tuner, CD/Aux 1,CD/Aux 2, Tape 1, Tape 2	20 Hz~20 kHz, 0,007% (1 V)
Eingangsempfindlichkeit und -impedanz	
Phono	2,5 mV/47 kΩ
Tuner, CD/Aux 1, CD/Aux 2, Tape 1, Tape 2	150 mV/33 kΩ
Maximale TA-Eingangsspannung (1 kHz, eff.)	150 mV
Geräuschabstand	
Phono	75 dB (nach IHF, A: 81 dB)
Tuner, CD/Aux 1, CD/Aux 2, Tape 1, Tape 2	88 dB (nach IHF, A: 98 dB)
Frequenzgang	
Phono	RIAA-Standardkurve ±0,8 dB
Tuner, CD/Aux 1, CD/Aux 2, Tape 1, Tape 2	7 Hz ~ 80 kHz(−3 dB)
Klangregler	
Baßregler (BASS)	50 Hz, +10 dB ~ −10 dB
Höhenregler (TREBLE)	20 kHz, +10 dB ~ −10 dB
Ausgangsspannung	Nennspg. 1 V max. 3,5 V
Kanalabweichung (250 Hz ~ 6300 Hz)	±0,5 dB
Übersprechdämpfung (CD/AUX 1, CD/AUX 2, TAPE 1, TAPE 2)	55 dB
Kopfhörerpegel und -impedanz	300 mV/8 Ω

Leistungsaufnahme	4 W
Abmessungen (B×H×T)	180 × 40 × 185 mm
Gewicht	0,8 kg

Endverstärker (SA-007P)

VERSTÄRKERTEIL

DIN-Ausgangsleistung	2 × 30W (6 Ω) 2 × 28W (8 Ω)
Dauerton-Ausgangsleistung bei 1 kHz beide Kanäle ausgesteuert	2 × 25W (6 Ω) 2 × 23W (8 Ω)
Dauerton-Ausgangsleistung bei 20 Hz ~ 20 kHz beide Kanäle ausgesteuert	2 × 24W (6 Ω) 2 × 22W (8 Ω)
Gesamtklirrfaktor	
Nennleistung bei 1 kHz	0,007% (6 Ω, 8 Ω)
Nennleistung bei 20 Hz ~ 20 kHz	0,02% (6 Ω, 8 Ω)
halbe Nennleistung bei 1 kHz	0,003% (6 Ω, 8 Ω)
halbe Nennleistung bei 20 Hz ~ 20 kHz	0,005% (6 Ω, 8 Ω)
Dämpfungsfaktor	30 (6 Ω)
Eingangsempfindlichkeit und -impedanz	1 V/47 kΩ
Geräuschabstand Nennleistung (6 Ω)	100 dB (115 dB nach IHF, A)
Frequenzgang	5 Hz ~ 100 kHz (−3 dB)
Kanalabweichung (250 Hz ~ 6300 Hz)	±0,5 dB
Übersprechdämpfung (1 kHz)	60 dB
Lautsprecherimpedanz	6 Ω ~ 16 Ω

Leistungsaufnahme	180 W
Abmessungen (B×H×T)	180 × 79 × 186 mm
Gewicht	2,9 kg

ALLGEMEINE DATEN

Leistungsaufnahme	208 W (bei Verwendung des SH-007E: 212 W)
Netzspannung	Wechselstrom 50 Hz/60 Hz, 220V

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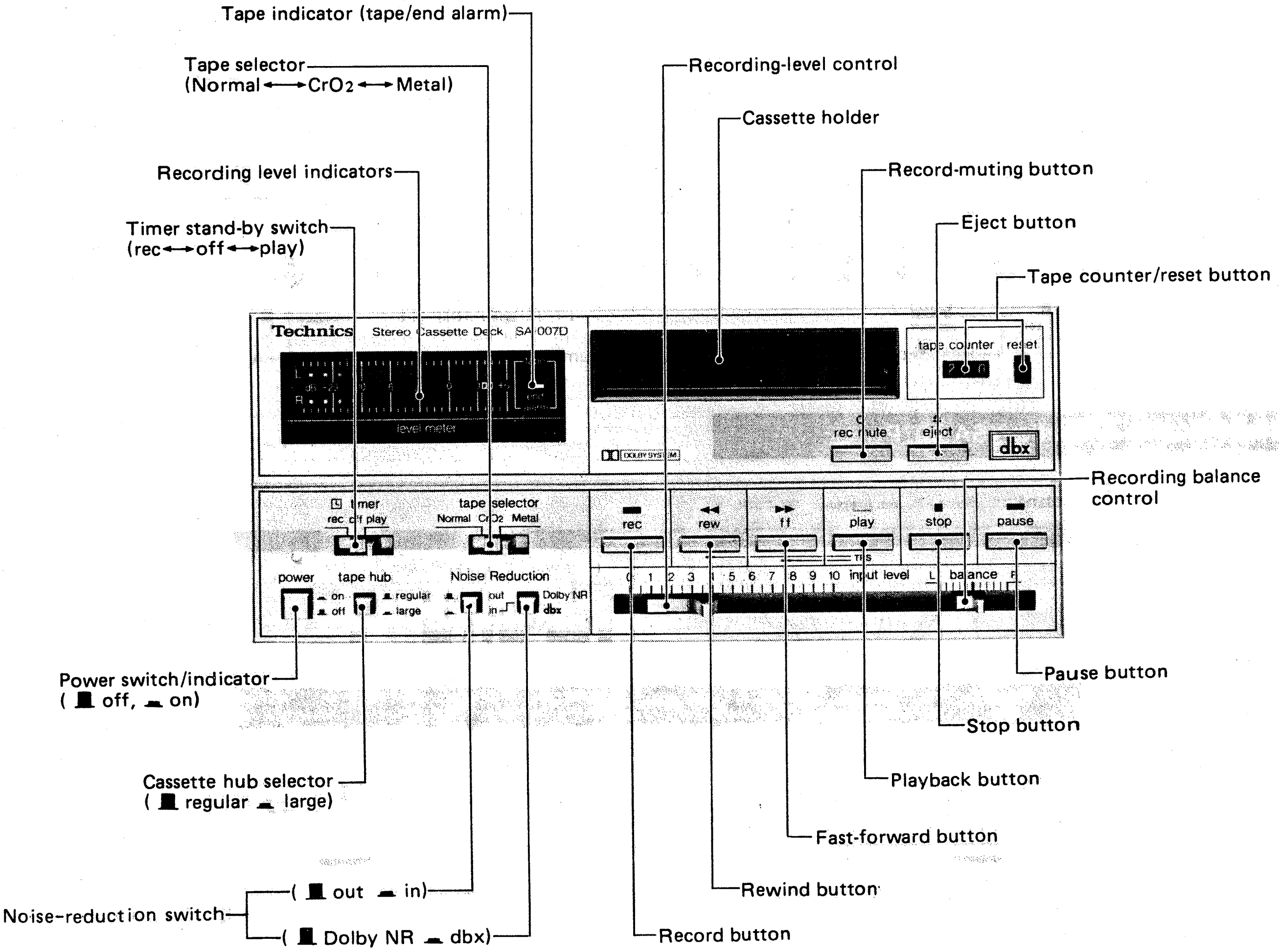
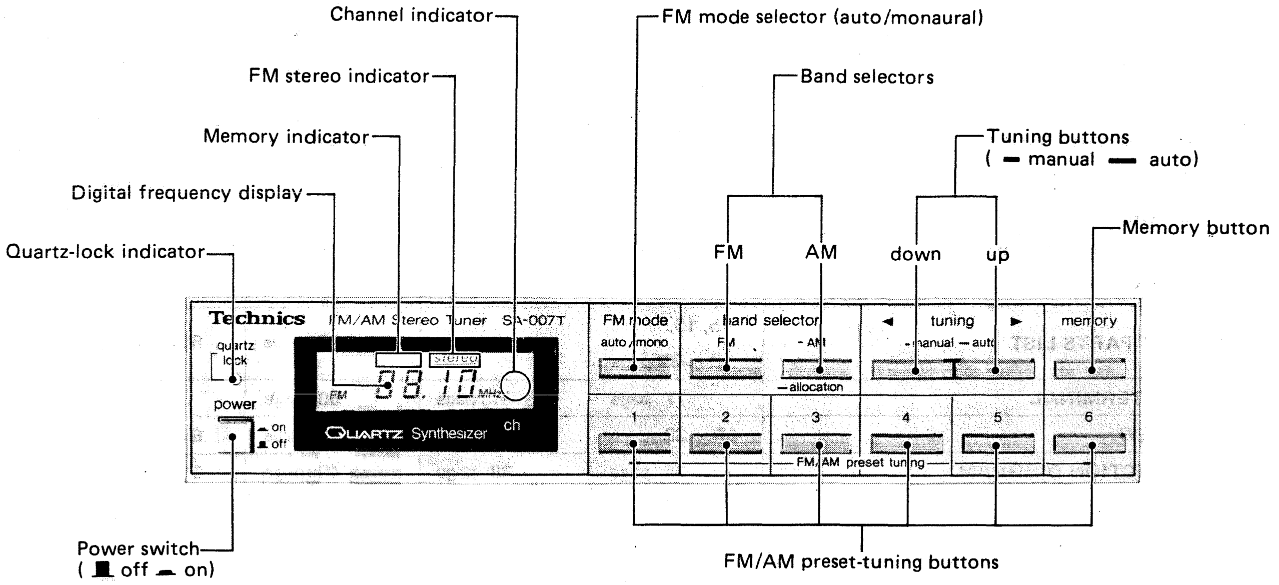
■ LOCATION OF CONTROLS

Stereo Cassette Deck (SA-007D)

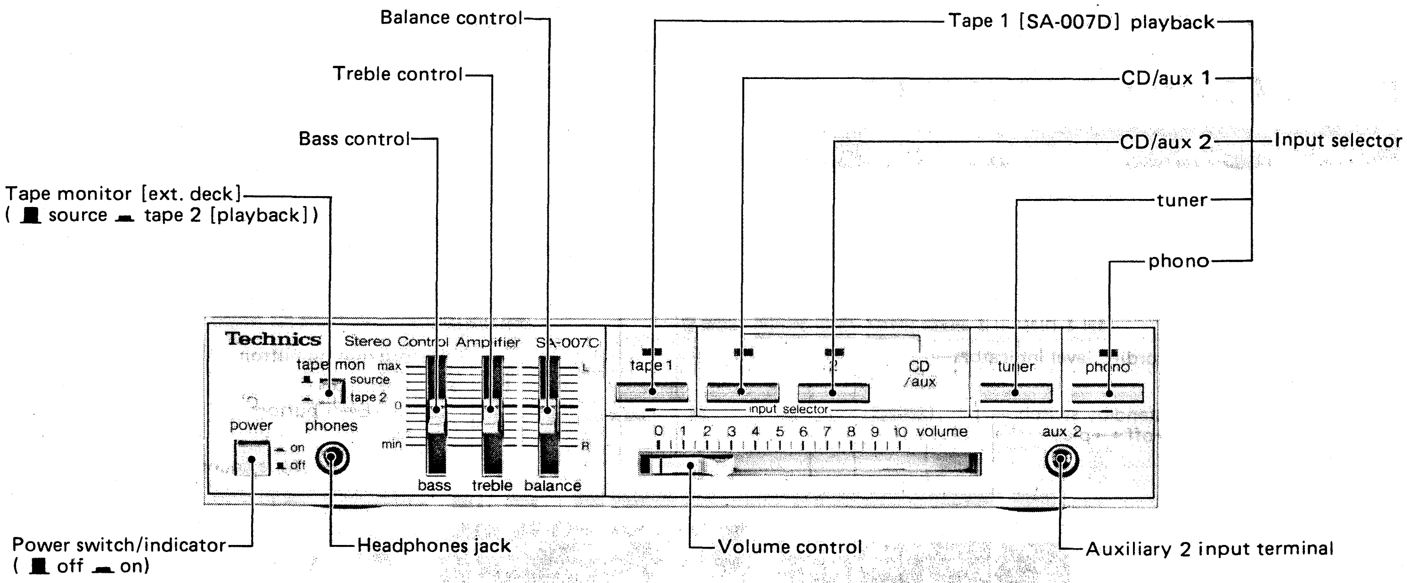

Tape indicator (tape/end alarm)
Tape selector
(Normal←→CrO2←→Metal)
Recording level indicators
Timer stand-by switch
(rec←→off←→play)
Recording-level control
Cassette holder
Record-muting button
Eject button
Tape counter/reset button
Technics
Stereo Cassette Deck SA-007D
level meter
tape counter
reset
rec mute
eject
dbx
DOLBY SYSTEM
timer
rec off play
tape selector
Normal CrO2 Metal
power
on
off
tape hub
regular
large
Noise Reduction
out
in
Dolby NR
dbx
rec
rew
ff
play
stop
pause
input level
balance
Recording balance control
Power switch/indicator
(■ off, ▬ on)
Cassette hub selector
(■ regular ▬ large)
Noise-reduction switch
(■ out ▬ in)
(■ Dolby NR ▬ dbx)
Pause button
Stop button
Playback button
Fast-forward button
Rewind button
Record button

SA-007

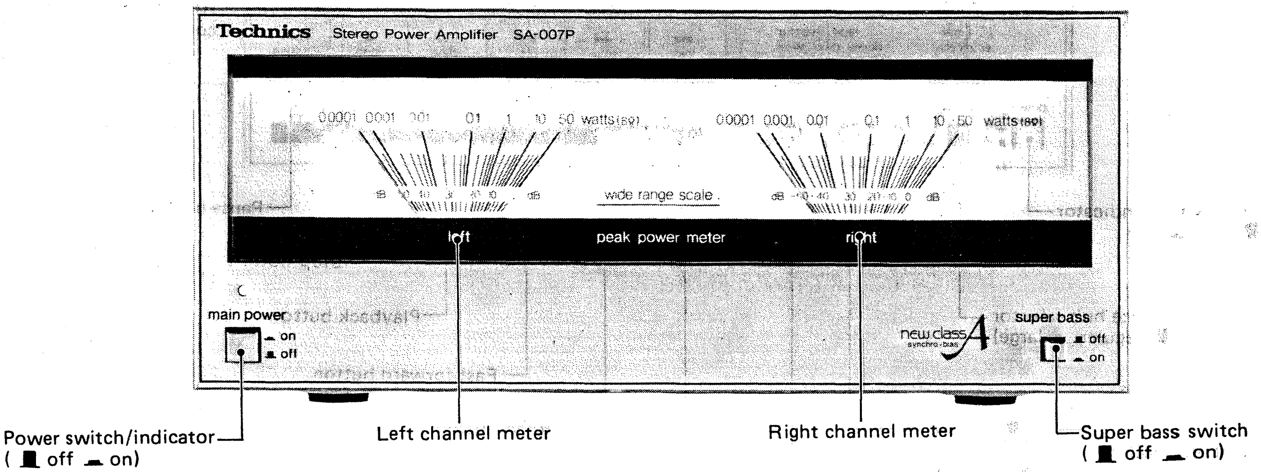
FM/AM Stereo Tuner (SA-007T)


Channel indicator
FM stereo indicator
Memory indicator
Digital frequency display
Quartz-lock indicator
FM mode selector (auto/monaural)
Band selectors
Tuning buttons
(▬ manual ▬ auto)
Memory button
FM
AM
down
up
Technics FM/AM Stereo Tuner SA-007T
quartz lock
power
on
off
88.10 MHz
Quartz Synthesizer
ch
FM mode
auto / mono
band selector
tuning
manual — auto
memory
allocation
1
2
3
4
5
6
FM/AM preset tuning
Power switch
(▮ off ▂ on)
FM/AM preset-tuning buttons

Stereo Control Amplifier (SA-007C)


Balance control
Treble control
Bass control
Tape monitor [ext. deck]
(▮ source ▂ tape 2 [playback])
Tape 1 [SA-007D] playback
CD/aux 1
CD/aux 2
Input selector
tuner
phono
Technics Stereo Control Amplifier SA-007C
tape mon
source
tape 2
max
0
min
L
R
power
phones
on
off
bass
treble
balance
tape 1
2
CD /aux
tuner
phono
input selector
0 1 2 3 4 5 6 7 8 9 10 volume
aux 2
Power switch/indicator
(▮ off ▂ on)
Headphones jack
Volume control
Auxiliary 2 input terminal

Stereo Power Amplifier (SA-007P)


Technics Stereo Power Amplifier SA-007P
0.0001 0.001 0.01 0.1 1 10 50 watts (8Ω)
0.0001 0.001 0.01 0.1 1 10 50 watts (8Ω)
wide range scale
dB
left
peak power meter
right
main power
on
off
new class A synchro-bias
super bass
off
on
Power switch/indicator
(▮ off ▂ on)
Left channel meter
Right channel meter
Super bass switch
(▮ off ▂ on)

■ FUNCTION AND OPERATION

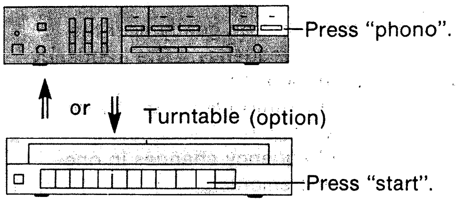
• Direct operation

"Direct operation" means that, once each component has been prepared for operation, any operation can be conveniently selected and started by one-touch operation.

Operation at the control amplifier, or at the individual components, is possible.

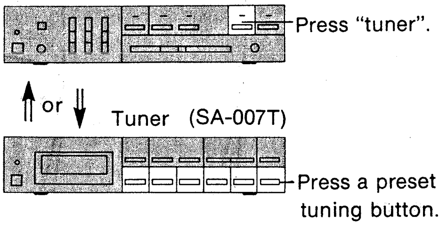
- **To listen to discs...**
  Press the "phono" button on the amplifier or the "start" button on the turntable.

Control amplifier (SA-007C)



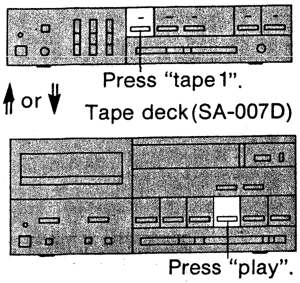
- **To listen to radio broadcasts...**
  Press the "tuner" button on the amplifier or one of the preset tuning buttons on the tuner.

Control amplifier (SA-007C)



- **To listen to a tape...**
  Press the "tape" button on the amplifier or the "play" button on the tape deck.

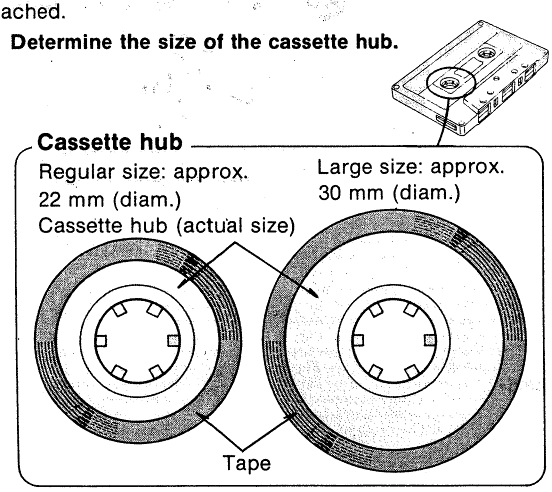
Control amplifier (SA-007C)



• Indication of remaining tape time

When, during recording or playback, the tape indicator begins to flash on and off, this indicates that there is not much time left on the tape. (When the flashing begins, there are, for a C-60 cassette, about 3 to 5 minutes remaining; for a C-90 cassette, about 1.5 times that 3~5 minutes, and for a C-120 cassette about 6 to 10 minutes remaining.)
The indicator will illuminate steadily when the tape end is reached.

1 **Determine the size of the cassette hub.**


Cassette hub
Regular size: approx. 22 mm (diam.)
Large size: approx. 30 mm (diam.)
Cassette hub (actual size)
Tape

2 **Set the cassette hub selector to the position corresponding to the size in the cassette to be used.**
- Regular size: Set to "regular" (▲→■).
- Large size: Set to "large" (■→▲).

Note:
If the cassette is not approximately 22 or 30 mm (diameter), the cassette may not operate correctly in this unit.

• Automatic selector system (Tape Program Selector)

The TPS is a selector system whereby the tape is fast-forwarded or rewound to the beginning of a tune, and the playback operation is automatically started.

Note:
The following describes those instances in which the tape that is fast-forwarded or rewound does not stop at the beginning, or stops in the middle, of a tune:

1. when the music is very soft, e.g., classical music which is mainly pianissimo
2. when there is sustained silence of 4 seconds or more within the recording (e.g., of a between conversation or a lecture)
3. when parts of a conversation, etc., are recorded onto the tape in between songs
4. when the interval between tunes is very short or contains audible noise
5. when the recording was made at a very low recording level

• Re-recording

"Re-recording" as used here means to find the beginning of a tune to be re-recorded, to make a blank recording (about 3 seconds) before the recording, and then to make the new recording itself.

1. While pressing the record button during the recording stand-by mode or during a recording, rewind the tape by pressing the rewind button.

2. After the tape is rewound, make a blank recording (about 3 seconds). The unit will then be in the recording stand-by mode.

3. Press the playback button; the recording will begin.

Note that the above steps from re-recording should be followed only after the original recording has been in progress for at least 15 seconds or more (in order to assure precise return to the beginning of the tune).

How to preset radio brosdcast frequencies

SA-007T can be used to preset as many as 12 radio broadcast frequencies: 6 FM and 6 AM. After broadcast frequencies have been preset as described below, any desired station can be quickly and easily selected by simply touching one button.

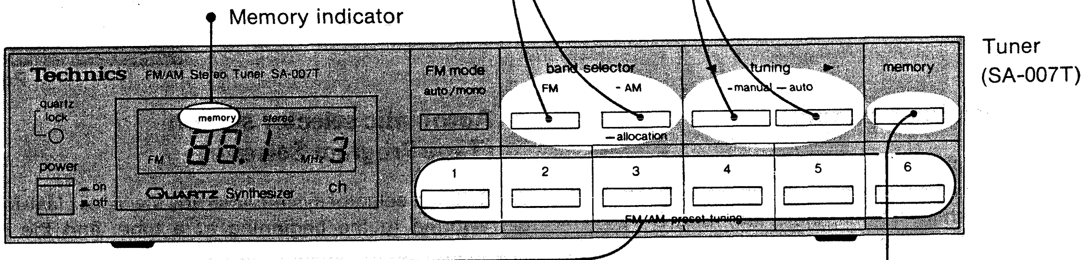
❶ **Press the "FM" or "AM" button.**

❷ **Station selection:**
Press the button; release it when the frequency changes.
(The next broadcast station is automatically tuned.)

Repeat until you get the desired station.

If reception is too weak...

1. Tap the button gently near the desired frequency. (The frequency display will stop.)
2. Tap the button again gently until you tune to the frequency. (The frequency changes in one-step increments.)


Memory indicator
Technics
FM/AM Stereo Tuner SA-007T
quartz lock
power
on
off
memory
stereo
FM
88.1
MHz
3
ch
QUARTZ Synthesizer
FM mode
auto/mono
band selector
FM
- AM
— allocation
◄ tuning ►
- manual — auto
memory
1
2
3
4
5
6
FM/AM preset tuning
Tuner
(SA-007T)

❹ **While the memory indicator is illuminated, press the preset-tuning button (1~6) which you want to use for that station.**
When the button is pressed, the memory indicator illumination will stop, and the presetting is complete.
Note:
If the memory indication illumination stops before you press the button, once again repeat step (3) and then step (4).
If a new frequency is preset for a button which had already been preset, the previous setting will be cancelled.

❸ **Press the memory button.**

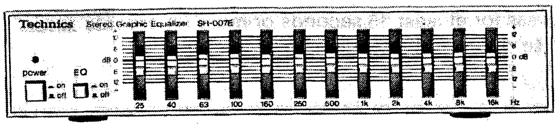
(The memory indicator will illuminate for about 4 seconds.)

❺ **Enter the name (call sign, etc.) of the preset broadcasting station on the file sheet.**

To "compose" sound

Connect the Technics stereo graphic equalizer model SH-007E (option).
(The SH-007E is exclusively for use with this SA-007 unit.)

Stereo graphic equalizer (SH-007E)


Technics
Stereo Graphic Equalizer
SH-007E
power
EQ
on
off
dB
0 dB
25
40
63
100
160
250
500
1k
2k
4k
8k
16k
Hz

If you use the SH-007E graphic equalizer

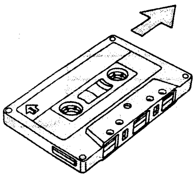
By using the 12 band-level controls (for frequencies 25 Hz to 16 kHz), you can "tailor" the sound to your listening room and also reduce certain disc and tape noises.

Examples of use:

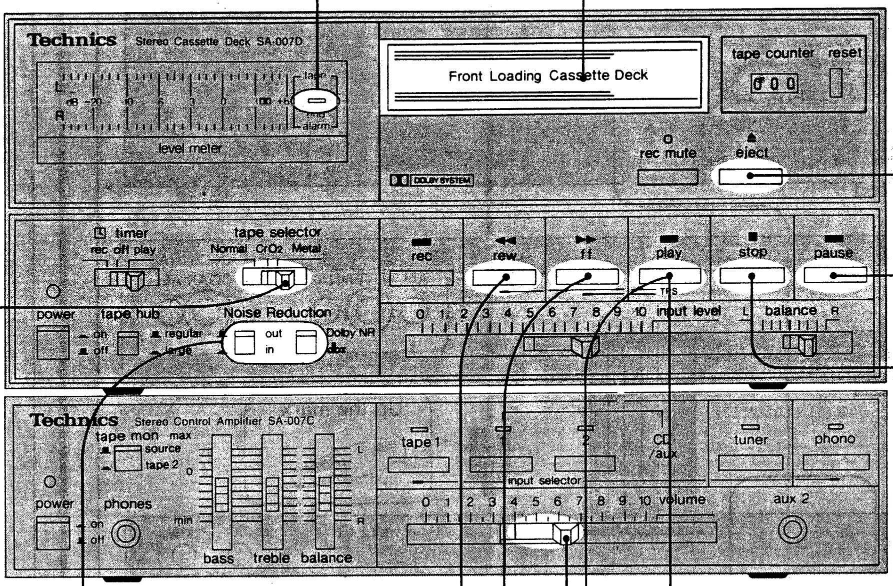
- To eliminate noise from live recordings
- To "tailor" sound for cassettes to play in your car
- To add extra power to disco music
- To reduce certain disc noises

To listen to tapes

❶ **Insert the cassette.**
The cassette will enter automatically if it is pushed firmly.
(The tape indicator will illuminate.)



Part where tape is exposed facing right and the side to be played back facing up.


Technics Stereo Cassette Deck SA-007D
level meter
tape
end
alarm
Front Loading Cassette Deck
tape counter
reset
0 0 0
rec mute
eject
DOLBY SYSTEM
timer
rec off play
tape selector
Normal CrO2 Metal
power
tape hub
on
off
regular
large
Noise Reduction
out
in
Dolby NR
dbx
rec
rew
ff
play
stop
pause
TPS
0 1 2 3 4 5 6 7 8 9 10 input level
L balance R
Technics Stereo Control Amplifier SA-007C
tape mon
source
tape 2
max
0
min
L
R
power
on
off
phones
bass
treble
balance
tape 1
1
2
CD /aux
tuner
phono
input selector
0 1 2 3 4 5 6 7 8 9 10 volume
aux 2

Tape indicator

Cassette tape deck (SA-007D)

Press to eject the cassette.

Press to stop the tape temporarily.

Press to stop the tape.

Control amplifier (SA-007C)

❹ **Playback button**
Press to begin tape playback.
(The indication lamp will illuminate.)

❸ **Select the playback system.**

❺ Adjust volume level.

❷ **Tape selector**
Set to position corresponding to type of tape to be used.

Automatic-repeat playback

- Press the playback button twice. (Indication lamp will flash.)
Automatic-repeat playback is automatic tape rewind and playback of the tape from its beginning after the tape reaches its end. This playback continues to repeat until the stop button is pressed.

Note:
The head assembly can easily become dirty if the automatic-repeat play function is used for a long time; cleaning is recommended after each 10 hours of use.

■ **To select the tune immediately following the one being played back**

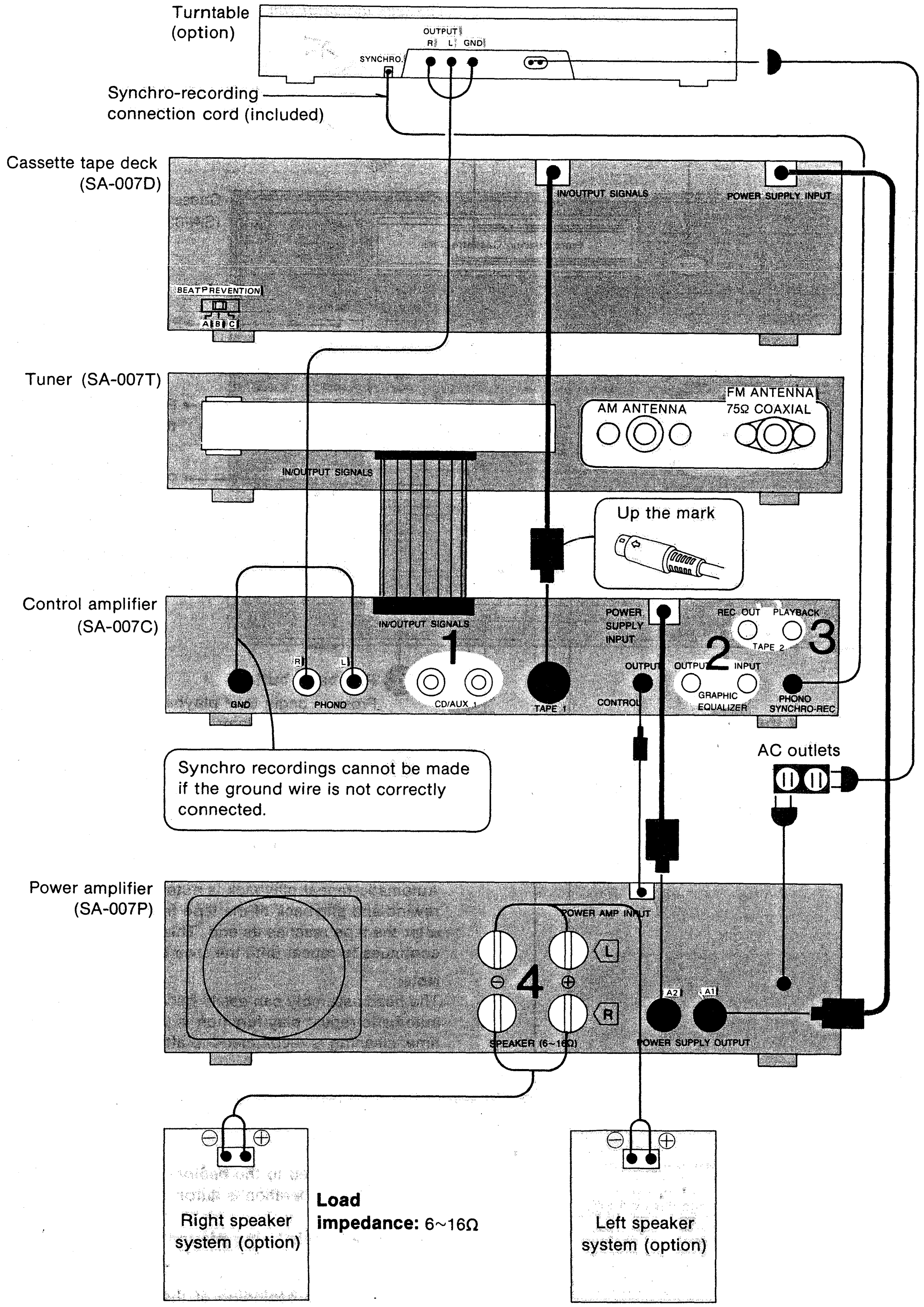
- Press.
(The tape is fast-forwarded to the beginning of the following tune, and the playback operation is automatically started.)

■ **To repeat the tune which is being played back**

- Press.
(The tape is rewound to the beginning of the tune, and the playback operation is automatically started.)

■ CONNECTION OF SYSTEM

Note:
Do not connect the power cord of the power amplifier to an electrical outlet until all other connections are completed.


Turntable (option)
OUTPUT
R L GND
SYNCHRO.
Synchro-recording connection cord (included)
Cassette tape deck (SA-007D)
IN/OUTPUT SIGNALS
POWER SUPPLY INPUT
BEAT PREVENTION
A B C
Tuner (SA-007T)
AM ANTENNA
FM ANTENNA 75Ω COAXIAL
IN/OUTPUT SIGNALS
Up the mark
Control amplifier (SA-007C)
IN/OUTPUT SIGNALS
POWER SUPPLY INPUT
REC OUT
PLAYBACK
TAPE 2
1
2
3
R
L
GND
PHONO
CD/AUX 1
TAPE 1
OUTPUT
CONTROL
OUTPUT
INPUT
GRAPHIC EQUALIZER
PHONO SYNCHRO-REC
AC outlets
Synchro recordings cannot be made if the ground wire is not correctly connected.
Power amplifier (SA-007P)
POWER AMP INPUT
L
R
⊖
4
⊕
SPEAKER (6~16Ω)
A2
A1
POWER SUPPLY OUTPUT
⊖ ⊕
Right speaker system (option)
Load impedance: 6~16Ω
⊖ ⊕
Left speaker system (option)

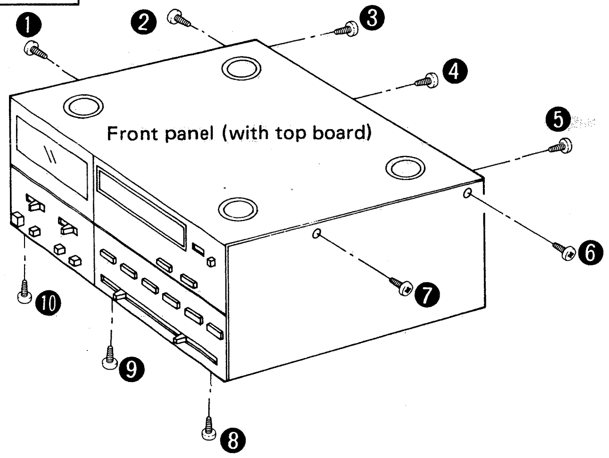
1. "CD/AUX 1" terminals
   Use these terminals to connect compact disc player.
2. Connect the graphic equalizer (option) : SH-007E
3. "TAPE 2" terminals
   Connection to second tape deck or video cassette recorder.
4. Connection of speaker wires.

CASSETTE DECK SECTION (SA-007D)

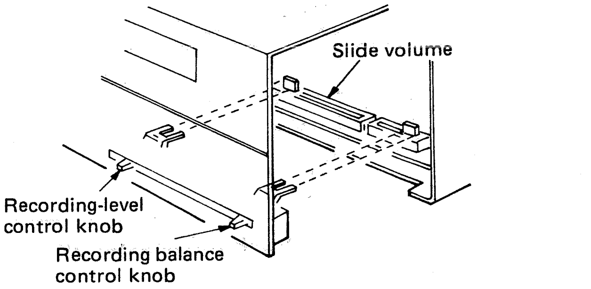
■ DISASSEMBLY INSTRUCTIONS

Ref. No. 1	How to remove the front panel (with top board)
Procedure 1	

- Remove the 10 setscrews.

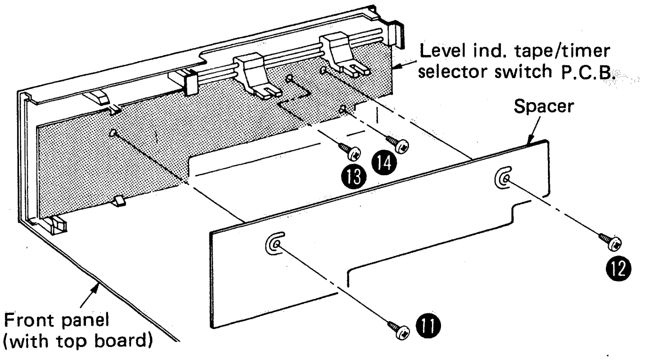

①
②
③
④
⑤
⑥
⑦
⑧
⑨
⑩
Front panel (with top board)

- When fitting the front panel with top board, shift the recording-level control knob and recording balance control knob to the left-end and right-end positions.

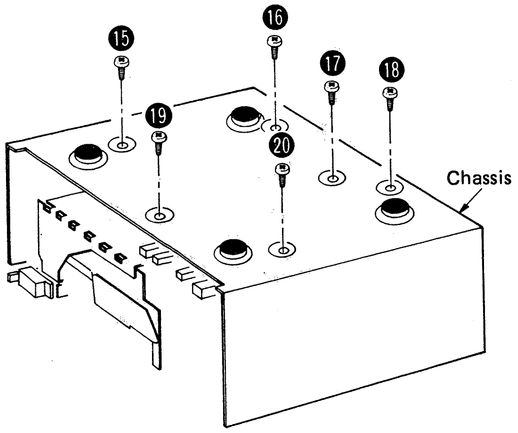

Slide volume
Recording-level control knob
Recording balance control knob

Ref. No. 2	How to remove the level indicator, tape/timer selector switch P.C.B.
Procedure 1 ➡ 2	

- Remove the 4 setscrews.


Level ind. tape/timer selector switch P.C.B.
Spacer
⑬
⑭
⑫
⑪
Front panel (with top board)

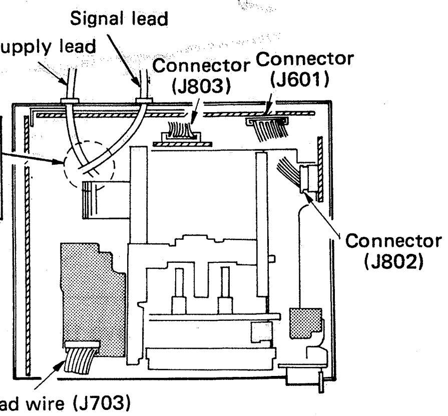
- Remove the 6 setscrews.


⑮
⑯
⑰
⑱
⑲
⑳
Chassis

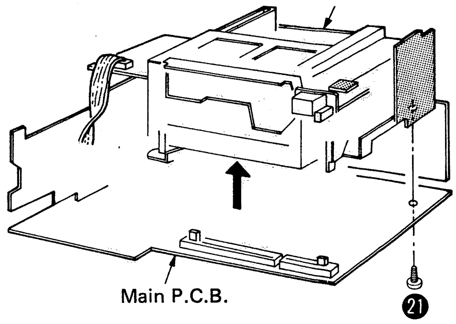
Ref. No. 3	How to remove the main P.C.B. and cassette deck
Procedure 1 ➡ 3	

- Remove the power supply lead, signal lead, lead wire (J703) and 3 connectors (J601, J802, J803).

Note
Before fitting the lead wires, make sure that they are crossing each other.

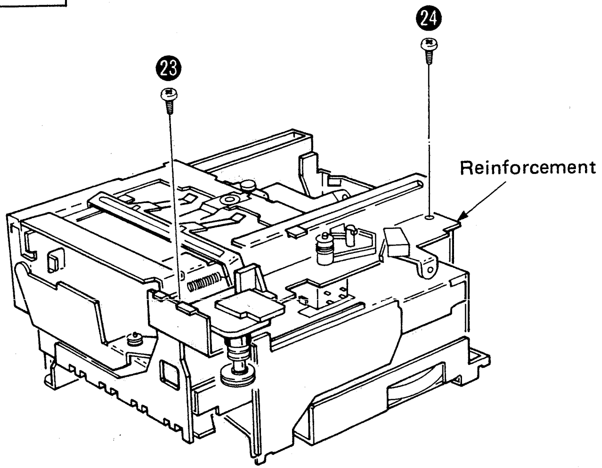

Signal lead
Power supply lead
Connector (J803)
Connector (J601)
Connector (J802)
Lead wire (J703)

- Remove the 1 setscrew.

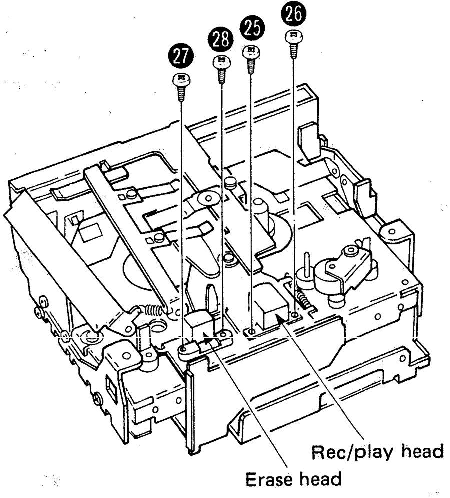

Cassette deck
Main P.C.B.
㉑

Ref. No.	
4	**How to remove the rec/play head and erase head**
Procedure **1➡3➡4**	

- Remove the 2 setscrews.

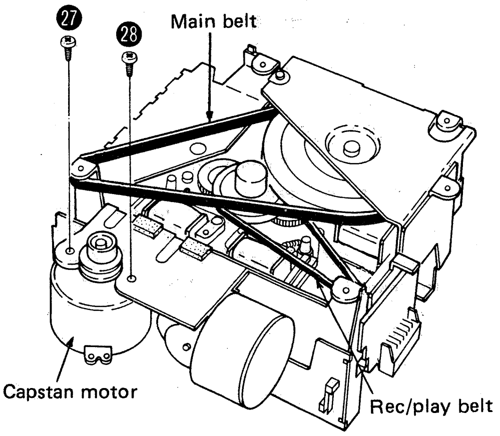

㉔
㉓
Reinforcement

- Remove the 4 setscrews.

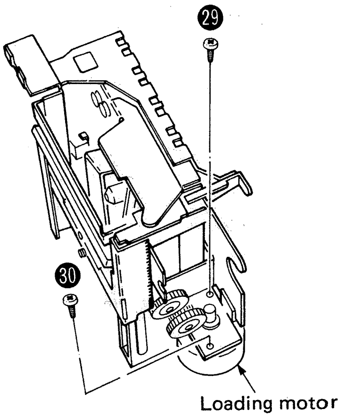

㉖
㉘
㉕
㉗
Rec/play head
Erase head

Ref. No.	
5	**How to remove the capstan motor and loading motor**
Procedure **1➡3➡5**	

- Set the main belt of capstan motor and the rec/play belt to the right and left retainers.
- Remove the 2 setscrews.

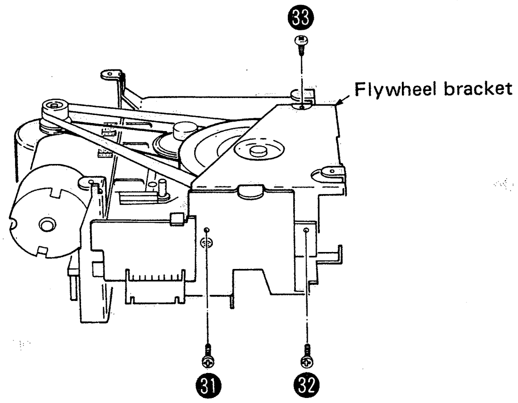

㉗
㉘
Main belt
Capstan motor
Rec/play belt

- Remove the 2 setscrews.

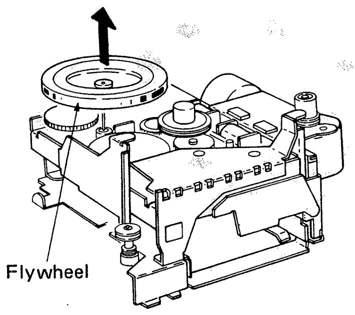

㉙
㉚
Loading motor

Ref. No.	
6	**How to remove the flywheel**
Procedure **1➡3➡6**	

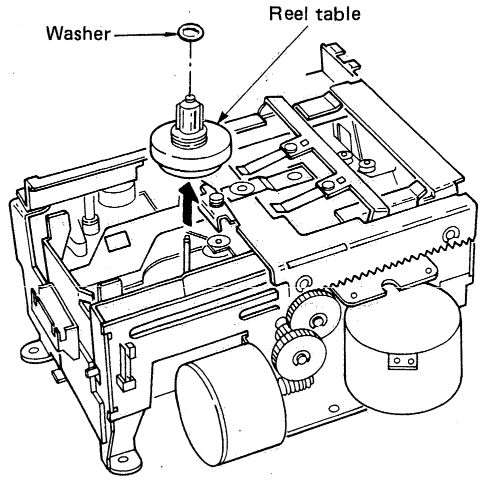
- Remove the 3 setscrews.


㉝
Flywheel bracket
㉛
㉜

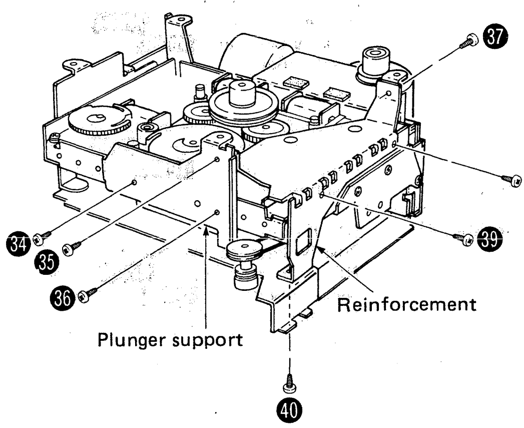
- Pull out the flywheel.



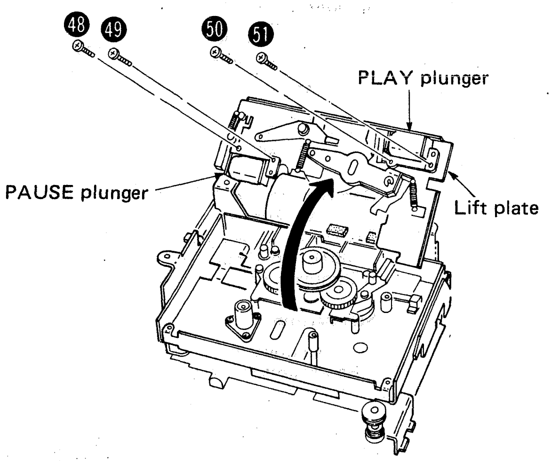
Ref. No. 7	How to remove the reel table	Ref. No. 8	How to remove the plungers
Procedure 1 ➡ 7	● Remove the washer used to fit the reel by use of nippers, and take it out.	Procedure 1➧3➧6➧8	


Washer
Reel table

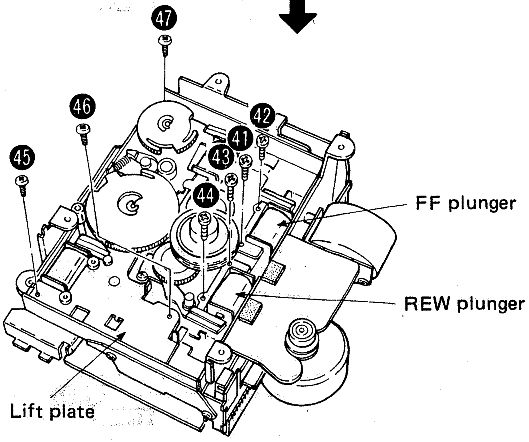
● Remove the 7 setscrews.


㊲
㊳
㊴
㉞
㉟
㊱
Reinforcement
Plunger support
㊵

● Remove the 4 setscrews.


㊽ ㊾
㊿ (51)
PLAY plunger
PAUSE plunger
Lift plate

● Remove the 7 setscrews.


㊼
㊻
㊷
㊶
㊸
㊺
㊹
FF plunger
REW plunger
Lift plate

■ MESSUNGEN UND JUSTIERUNGEN

- **Zu verwendende Instrumente**

1. Elektronische Wechselstrom- und Gleichstrom-Röhrenvoltmeter
2. Frequenzzähler
3. Tonfrequenz-Oszillator
4. Oszilloskop

Testband-Cassette
QZZCFM (Abb. 1)
QZZCWAT (Abb. 2)

- **Einstellungen**

1. Timer-Bereitschaftsschalter . . . . off
2. Bandsorten-Wahlschalter. . . . . normal
3. Cassettennaben-Wahlschalter . . . . regular
4. Rauschunterdrückung. . . . . out
5. Aufnahmebalance-Regler . . . . Mitte

- **Vorsichtsmaßregeln für die Justierung**

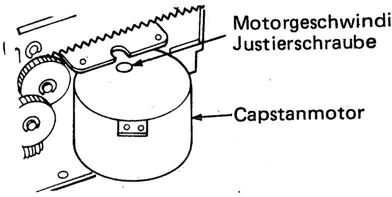
1. Das Durchführen eines Leitungstests am Kopf mit einem Prüfer hat Magnetisierung des Kopfes zur Folge. Nach dem Leitungstest ist daher der Kopf zu entmagnetisieren.
2. Nach Ersetzen des Aufnahme/Wiedergabekopfes sind die Justierungen 1 ~ 5 durchzuführen.
3. Nach Reparatur der dbx-Platine (A), muß justierung 6 durchgeführt werden.
4. Nach Reparatur des Mechanismus (Austauschen des Motors, usw.), muß Justierung 7 durchgeführt werden.

<table>
<tr><th>NR.</th><th>JUSTIERUNGEN</th><th>VORBEREITUNGEN</th><th>ZU JUSTIERENDE TEILE</th><th>VORGEHEN FÜR DIE JUSTIERUNG</th></tr>
<tr><td rowspan="2">1</td><td rowspan="2">Kopfazimut
(Siehe Abb. 4)</td><td>(L. Kanal)
Positiv-Seite des Wechselstrom-Röhrenvoltmeters an TP803 und Negativ-Seite an TP805 (Masse) anschließen.</td><td rowspan="2">Aufnahme/ Wiedergabekopfwinkel-Justierschraube
(Siehe Abb. 3)</td><td rowspan="2">1. Das Azimut-Testband (QZZCFM 8 kHz) wiedergeben.
2. Die Aufnahme/Wiedergabekopfwinkel-Justierschraube so justieren, daß der Ausgangspegel maximal wird.
3. Beide Kanäle messen und die Pegel auf gleichen Ausgang abgleichen.
4. Nach der Justierung ist die Kopfjustierschraube mit Lack zu sichern.</td></tr>
<tr><td>(R. Kanal)
Positiv-Seite des Wechselstrom-Röhrenvoltmeters an TP804 und Negativ-Seite an TP805 (Masse) anschließen.</td></tr>
<tr><td rowspan="2">2</td><td rowspan="2">Wiedergabe-Verstärkungsgrad
(Siehe Abb. 4)</td><td>(L. Kanal)
Positiv-Seite des Wechselstrom-Röhrenvoltmeters an TP803 und Negativ-Seite an TP805 (Masse) anschließen.</td><td>VR601 (L. Kanal)</td><td rowspan="2">1. Den Bandsorten-Wahlschalter in die "normal"-Position stellen.
2. Den Rauschunterdrückungs-Schalter auf "in" und den Dolby NR/dbx-Schalter auf "Dolby NR" stellen.
3. Das 315 kHz-(0 dB)-Frequenzverlauf-Testband wiedergeben (Abb. 1). Danach VR601 und VR602 so justieren, daß der Ausgang 410 ± 20mV beträgt.</td></tr>
<tr><td>(R. Kanal)
Positiv-Seite des Wechselstrom-Röhrenvoltmeters an TP803 und Negativ-Seite an TP805 (Masse) anschließen.</td><td>VR602 (R. Kanal)</td></tr>
<tr><td>3</td><td>Löschstrom
(Siehe Abb. 5)</td><td>Positiv-Seite des Wechselstrom-Röhrenvoltmeters an TP604 und Negativ-Seite an TP603 (Masse) anschließen.</td><td>VR607</td><td>1. Den Bandsorten-Wahlschalter in die "metal"-Position stellen.
2. Eine Cassette in das Deck einlegen und das Gerät auf Aufnahme schalten.
3. VR607 so justieren, daß der Ausgang von TP604 145mV beträgt.
Standardwert
<table>
<tr><th>Einstellung des Bandwahlschalters</th><th>Spannung</th></tr>
<tr><td>Metal</td><td>145 ± 5mV</td></tr>
<tr><td>CrO_2</td><td>80mV oder mehr</td></tr>
<tr><td>Normal</td><td>60mV oder mehr</td></tr>
</table></td></tr>
<tr><td rowspan="2">4</td><td rowspan="2">Aufnahme-Vormagnetisierung
(Siehe Abb. 6)</td><td>(L. Kanal)
Positiv-Seite des Wechselstrom-Röhrenvoltmeters an TP601 und Negativ-Seite an TP603 (Masse) anschließen.</td><td>VR603 (L. Kanal)</td><td rowspan="2">1. Den Bandsorten-Wahlschalter in die "normal"-Position stellen.
2. Das Gerät auf Aufnahme schalten.
3. VR601 und VR602 auf eine Anzeige des Röhrenvoltmeters von 4,2mV justieren.
Standardwert
<table>
<tr><th>Einstellung des Bandwahlschalters</th><th>Spannung</th></tr>
<tr><td>Metal</td><td>6,5 ~ 8,0mV</td></tr>
<tr><td>CrO_2</td><td>4,5 ~ 5,5mV</td></tr>
<tr><td>Normal</td><td>4,0 ~ 4,4mV</td></tr>
</table></td></tr>
<tr><td>(R. Kanal)
Positiv-Seite des Wechselstrom-Röhrenvoltmeters an TP602 und Negativ-Seite an TP603 (Masse) anschließen.</td><td>VR604 (R. Kanal)</td></tr>
<tr><td rowspan="2">5</td><td rowspan="2">Aufnahme-Vormagnetisierungsstrom
(Siehe Abb. 7)</td><td>(L. Kanal)
1. Positiv-Seite des Wechselstrom-Röhrenvoltmeters an TP803 und Negativ-Seihe an TP805 (Messe) anschließen.
2. TP605 und TP603 mit Klemmenkabel kurzschließen.
3. Den Tonfrequenz-Oszillator an den AUX-Anschluß des Steuerverstärkers (SA-007C) anschließen und ein 1 kHz-Signal anlegen.
4. Wechselstrom-Röhrenvoltmeter zwischen TP601 und TP603 anschließen.</td><td>VR605 (L. Kanal)</td><td rowspan="2">1. Den Bandsorten-Wahlschalter in die "normal"-Position stellen.
2. Das Gerät auf Aufnahme schalten.
3. Den Aufnahmepegelregler so justieren, daß der Ausgang von TP803 (L) und TP804 (R) 410mV beträgt.
4. VR605 und VR606 so justieren, daß der Ausgang von TP601 (L) und TP602 (R) 400μV beträgt.
Standardwert
<table>
<tr><th>Einstellung des Bandwahlschalters</th><th>Spannung</th></tr>
<tr><td>Metal</td><td>590 ~ 760μV</td></tr>
<tr><td>CrO_2</td><td>440 ~ 510μV</td></tr>
<tr><td>Normal</td><td>380 ~ 420μV</td></tr>
</table></td></tr>
<tr><td>(R. Kanal)
1. Positiv-Seite des Wechselstrom-Röhrenvoltmeters an TP804 und Negativ-Seite an TP805 (Masse) anschließen.
2. TP605 und TP603 mit Klemmenkabel kurzschließen.
3. Den Tonfrequenz-Oszillator an den AUX-Anschluß des Steuerverstärkers (SA-007C) anschließen und ein 1 kHz-Signal anlegen.
4. Wechselstrom-Röhrenvoltmeter zwischen TP602 und TP603 anschließen.</td><td>VR606 (R. Kanal)</td></tr>
</table>

NR.	JUSTIERUNGEN	VORBEREITUNGEN	ZU JUSTIERENDE TEILE	VORGEHEN FÜR DIE JUSTIERUNG
6	dbx-Strom **(Siehe Abb. 8)**	(L. Kanal) 1. Den Tonfrequenz-Oszillator an den AUX-Anschluß des Steuerverstärkers (SA-007C) anschließen und ein 1 kHz-Signal anlegen. 2. Elektronisches Wechselstrom-Röhrenvoltmeter zwischen TP803 und TP805 anschließen. 3. Elektronisches Gleichstrom-Röhrenvoltmeter zwischen TP801 und TP802 anschließen. (R. Kanal) 1. Den Tonfrequenz-Oszillator an den AUX-Anschluß des Steuerverstärkers (SA-007C) anschließen und ein 1 kHz-Signal anlegen. 2. Elektronisches Wechselstrom-Röhrenvoltmeter zwischen TP804 und TP805 anschließen. 3. Elektronisches Gleichstrom-Röhrenvoltmeter zwischen TP801 und TP802 anschließen.	VR801	1. Den Bandsorten-Wahlschalter in die "normal"-Position stellen. 2. Ein Cassette einlegen und das Gerät auf Aufnahme schalten. 3. Den Aufnahmepegelregler so justieren, daß der Ausgang von TP803 (L) und TP804 (R) 290mV beträgt. 4. VR801 so justieren, daß die Spannung zwischen TP801 und TP802 15mV beträgt.
7	Bandrestzeit-Anzeige	——————	VR704	1. Den Cassettennaben-Wahlschalter auf "regular" stellen. 2. Eine 60-Minuten-Cassette einlegen und das Gerät auf Schnellvorlauf (ff) schalten. 3. Wenn das Band sein Ende erreicht, ist die Bandzählwerk-Rückstelltaste zu drücken, um das Bandzählwerk auf "000" zu stellen. 4. Die Rückspultaste (rew) drücken, um das Band bis auf etwa "920" zurückzuspulen. 5. Die Wiedergabetaste drücken und VR704 so justieren, das das Bandzählwerk "930" anzeigt und die Bandanzeige blinkt.

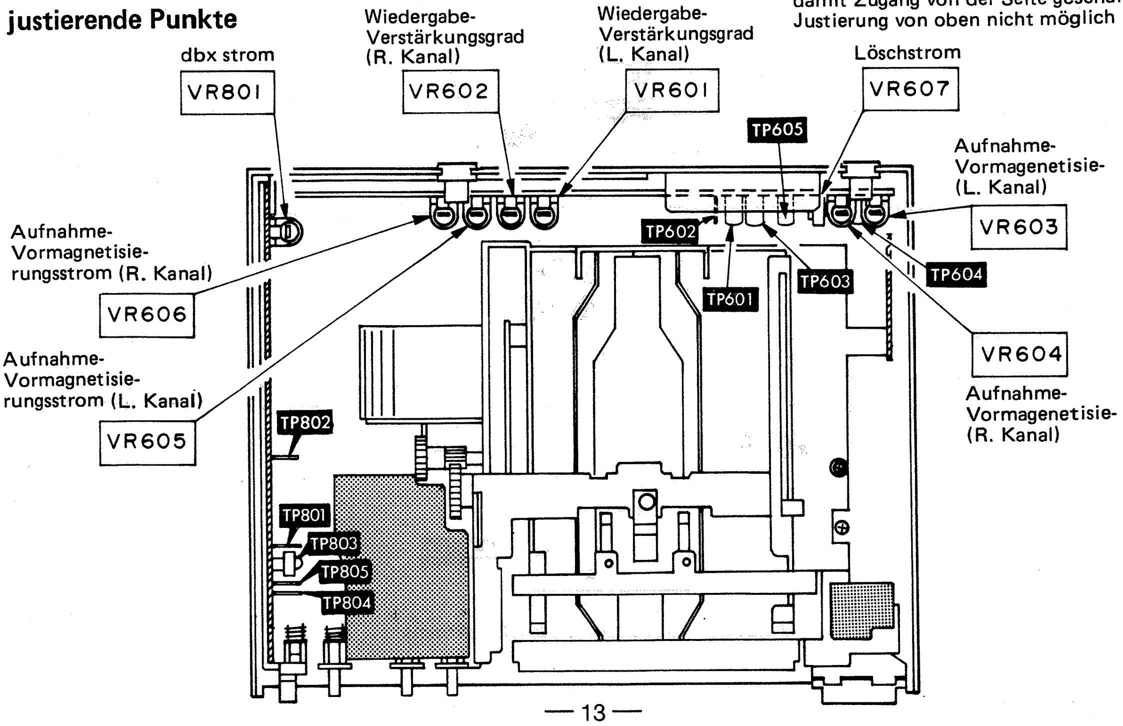
- **Nach Ersetzen des Motors im Cassettendeck ist die Motorgeschwindigkeit zu justieren.**

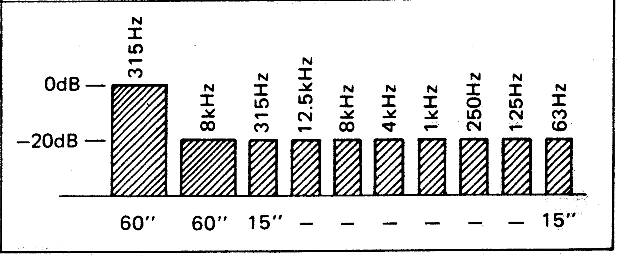
1. Das Testband (Abb. 2 : QZZCWAT) für die Gleichlaufschwankungs-Justierung abspielen.
2. Den Frequenzzähler zwischen TP803 und TP805 anschließen.
3. Die Justierschraube hinten am Motor so justieren, daß die Ausgangsfrequenz des Lautsprecheranschlußes 3010 ± 45 Hz beträgt.


Motorgeschwindigkeits-Justierschraube
Capstanmotor

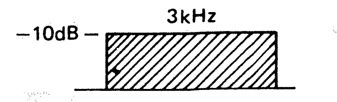
* Bei der Justierung von VR607 ist das Chassis zu entfernen, damit Zugang von der Seite geschaffen wird, da die Justierung von oben nicht möglich ist.

- **Zu justierende Punkte**

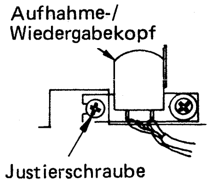

dbx strom
VR801
Wiedergabe-Verstärkungsgrad (R. Kanal)
VR602
Wiedergabe-Verstärkungsgrad (L. Kanal)
VR601
Löschstrom
VR607
TP605
Aufnahme-Vormagenetisie-(L. Kanal)
VR603
TP602
TP603
TP604
TP601
Aufnahme-Vormagnetisierungsstrom (R. Kanal)
VR606
Aufnahme-Vormagnetisierungsstrom (L. Kanal)
VR605
VR604
Aufnahme-Vormagenetisie-(R. Kanal)
TP802
TP801
TP803
TP805
TP804

Referenz	Bedienelemente der Aufnahme (QZZCFM)
Aufnahmepagel −20 dB & 0 dB, 160nWb/m Entzerrer : 318µs, 120µs Bandgeschwindingkeit : 4.75 cm/sec. Aufnahmezeit : 4 min.	

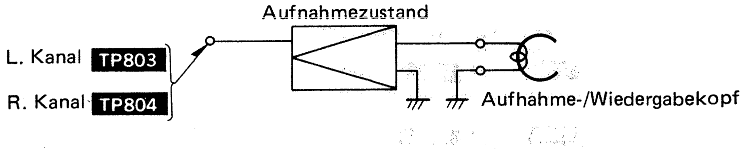
[Abb. 1]

(QZZCWAT)
Bandgeschwindingkeit 4.75 cm/sec. 

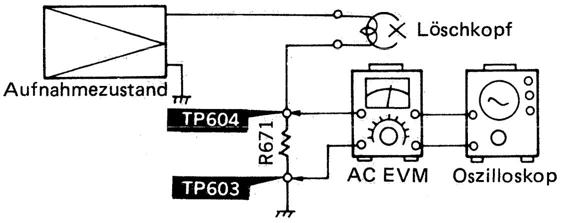
[Abb. 2]


Aufhahme-/
Wiedergabekopf
Justierschraube

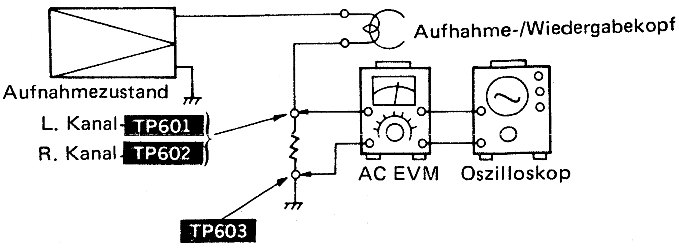
[Abb. 3]


Aufnahmezustand
L. Kanal TP803
R. Kanal TP804
Aufhahme-/Wiedergabekopf

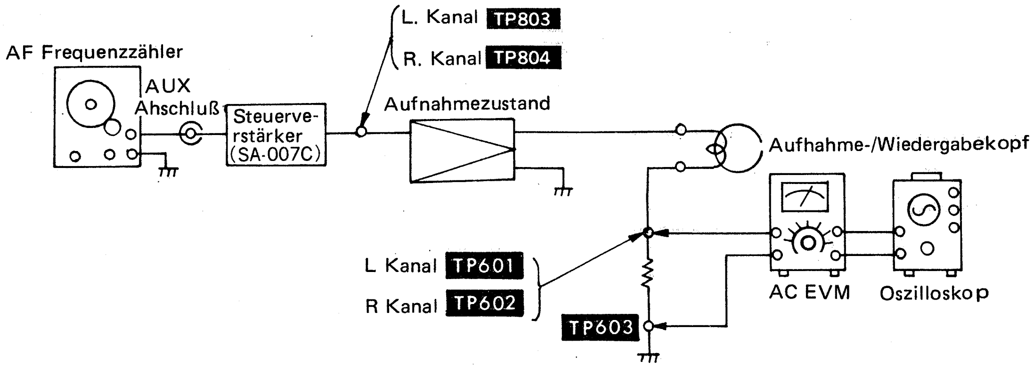
[Abb. 4] Justierung des Kopfazimuts und der wiedergabeverstärkung


Löschkopf
Aufnahmezustand
TP604
R671
TP603
AC EVM
Oszilloskop

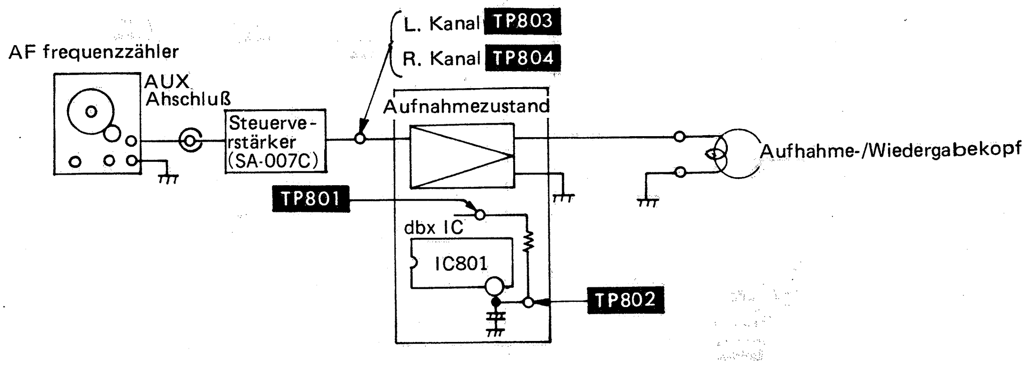
[Abb. 5] Justierung des Löschstroms


Aufhahme-/Wiedergabekopf
Aufnahmezustand
L. Kanal TP601
R. Kanal TP602
TP603
AC EVM
Oszilloskop

[Abb. 6] Justierung der Aufnahme-Vormagnetisierung


L. Kanal TP803
R. Kanal TP804
AF Frequenzzähler
AUX
Ahschluß
Steuerverstärker
(SA-007C)
Aufnahmezustand
Aufhahme-/Wiedergabekopf
L Kanal TP601
R Kanal TP602
TP603
AC EVM
Oszilloskop

[Abb. 7] Justierung des Aufnahme-Vormagnetisierungsstroms


L. Kanal TP803
R. Kanal TP804
AF frequenzzähler
AUX
Ahschluß
Steuerverstärker
(SA-007C)
Aufnahmezustand
Aufhahme-/Wiedergabekopf
TP801
dbx IC
IC801
TP802

[Abb. 8] Justierung des dbx-stroms

■ REPLACEMENT PARTS LIST (Deck Unit Parts)

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. The parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC601	AN6558F	Play Back Amp
IC701,702	SVILM1121CN	Dolby
IC703	AN6262	TPS
IC704	SVITC9310N11	Logic Control
IC705	SVIM54530P	Plunger Motor Drive
IC706	SVIUPD4011BC	Logic
~~IC707~~	~~UPD4069UBC~~	~~Logic~~
IC708,709	AN6882	LED Drive
IC801	AN6291	dbx
IC802	SVIUPC1228H	dbx
IC803	DN6838-S	Hall
TRANSISTORS		
Q601~603 Ⓢ	2SC1845-E	Head Selector
Q604,617,812,820 Ⓢ	2SA1015-Y	Switching
Q605,606,701,702	2SD1302-S	Head Selector
704,705,720,723		Switching
724,821 Ⓢ		
Q607~614,714,715, 801~810 813~816 Ⓢ	2SC945-Q	Switching
Q703,721,726,811	UN4112	Muting
Q706,711~713 716,717, 719,725,727,800 818,824	UN4212	Switching
Q707~710,728,729	2SJ103-GR	Switching
Q722	2SD1273-Q	Regulator
Q618 Ⓢ	2SD471	Bias
Q730,731	UN4115	Switching

Ref. No.	Part No.	Description
TRANSISTORS		
Q817,819	2SD893A	Switching
Q822,823 Ⓢ	2SA720-Q	Switching
DIODES		
D601,603,604 701~708,710 711~715,717,719 743~758,761~765 802,806,807 809,810	MA165	Switching, Bias
D706,707 Ⓢ	20A90	Switching
D602	MA4030M	3.0V Zener
D709,721,801	MA4051M	5.1V Zener
D716	MA4056M	5.6V Zener
D720	MA4140-M	14V Zener
D724~733	LN413YP	LED (Yellow)
D734~737	LN213RP	LED (Red)
D738	LN313GP	LED (Green)
D722,723,760,808 ⚠	SVD1SR35200F	Rectifier
D739	LN230RPP	LED (Power)
D740	LN442YPH	LED (Pause)
D741	LN242RP	LED (Rec)
D742	LN342GP	LED (Play)
COILS		
L601,602	SLM1C77-K	Trap
L603,604	SLQU222-2Y	Choke
L605	SL09C5-K	Bias OSC
L606	RLQY15G5-0	Choke
L701,702	SLM1B3-K	MPX Filter
L703 Ⓢ	RLQY15S5-0	Choke
L801,802	SLQU270-6Y	Choke

Ref. No.	Part No.	Description
VARIABLE RESISTORS		
VR601,602,605,606, 607 Ⓢ	EVNM0AA00B24	Recording ADJ 20kΩ(B)
VR603,604 Ⓢ	EVNM0AA00B25	Recording ADJ 200kΩ(B)
VR701	EWAKF4X05G15	Balance 100kΩ(B)
VR702,703	EWAPA7X05A24	Recording Level 20kΩ(A)
~~VR704~~	~~EVM3AGA00B16~~	~~Current ADJ 1MΩ(B)~~
VR801	EVNK0AA00B23	Current ADJ 2kΩ(B)
THERMISTOR		
TH601	ERTD2FHK202S	2kΩ
COMPONENT COMBINATION		
Z701	EXFP6102ZW	0.001μF×6
SWITCHES		
S701,702,703,706	SSH1129	Noise, Power, Tapehab
S704,705	SSS81	Timer, Tape Selector
S707~714	SSG13	Deck Control
S715	SSS150	Beat Proof
S801,803	SSU2	Cassette
S802	SSP39	Loading
S804	SMQ4150	Miss REC

Numbering System of Resistor

Resistor Type	Wattage	Tolerance
ERD : Carbon	25 : 1/4W	J : ± 5%
ERX : Metal Film	1 : 1W	G : ± 2%
	S1 : 1/2W	
	S2 : 1/4W	

- The unit of resistance is Ω (ohm).
  K = 1000Ω, M = 1000kΩ.

Numbering System of Capacitor

Capacitor Type	Voltage		Tolerance
	ECEA Type	Other	
ECEA : Electrolytic	OJ : 6.3V	1H : 50V	J : ± 5%
ECCD : Ceramic	1A : 10V	05 : 50V	K : ± 10%
ECKD : Ceramic	1C : 16V		Z : +80%, −20%
ECQM : Polyester	1E : 25V		
ECEA...N : Non Polar Electrolytic	1H : 50V		
ECQP : Polypropylene	25 : 25V		

- The unit capacitance is μF (microfarad).
  P = 10^{-6} μF

● RESISTORS

Ref. No.	Part No.	Value
R601,602	ERDS2TJ472	4.7K
R603	ERDS2TJ561	560
R604,605	ERDS2TJ100	10
R606,607	ERDS2TJ472	4.7K
R608,609	ERDS2TJ154	150K
R610,611	ERDS2TJ151	150
R612,613	ERDS2TJ104	100K
R614	ERDS2TJ223	22K
R615,616	ERDS2TJ394	390K
R617,618	ERDS2TJ153	15K
R619,620	ERDS2TJ472	4.7K
R621,622	ERDS2TJ151	150
R623,624	ERDS2TJ562	5.6K
R625,626	ERDS2TJ332	3.3K
R628,629	ERDS2TJ471	470
R630,631	ERDS2TJ473	47K
R632	ERDS2TJ223	22K
R633,634	ERDS2TJ103	10K
R635,636	ERDS2TJ102	1K
R637,638	ERDS2TJ102	1K

Ref. No.	Part No.	Value
R639,640	ERDS2TJ562	5.6K
R641,642	ERDS2TJ102	1K
R643,644	ERDS2TJ223	22K
R647,648	ERDS2TJ822	8.2K
R649,650	ERDS2TJ681	680
R651,652	ERDS2TJ474	470K
R653,654	ERDS2TJ473	47K
R655,656	ERDS2TJ104	100K
R659,660	ERDS2TJ822	8.2K
R662	ERDS2TJ472	4.7K
R663 ⚠	ERDS1FJ121	120
R664 Ⓢ	ERD25FJ221	220
R666 Ⓢ ⚠	ERD25FJ220	22
R667,668	ERDS2TJ102	1K
R669	ERDS2TJ102	1K
R670	ERDS2TJ100	10
R671	ERDS2TJ332	3.3K
R672	ERDS2TJ100	10
R673	ERDS2TJ1R0	1.0
R674	ERDS2TJ223	22K

Ref. No.	Part No.	Value
R675	ERDS2TJ332	3.3K
R676	ERDS2TJ222	2.2K
R677	ERDS2TJ562	5.6K
R678 Ⓢ	ERD25FJ222	2.2K
R683	ERDS2TJ2R2	2.2
R690	ERDS2TJ103	10K
R701,702	ERDS2TJ563	56K
R703,704	ERDS2TJ332	3.3K
R705,706	ERDS2TJ473	47K
R707,708	ERDS2TJ274	270K
R709,710	ERDS2TJ753	75K
R711 Ⓢ ⚠	ERD25FJ220	22
R713,714	ERDS2TJ472	4.7K
R715,716	ERDS2TJ103	10K
R717,718	ERDS2TJ103	10K
R721	ERDS2TJ103	10K
R722 ⚠	ERDS1FJ182	1.8K
R727,728	ERDS2TJ103	10K
R729,730	ERDS2TJ102	1K
R731	ERDS2TJ223	22K

Ref. No.	Part No.	Value
R733,734	ERDS2TJ472	4.7K
R735	ERDS2TJ103	10K
R737	ERDS2TJ103	10K
R739,740 ⚠	ERDS1FJ820	82
R741	ERDS2TJ822	8.2K
R742	ERDS2TJ153	15K
R743,744	ERDS2TJ104	100K
R745,746	ERDS2TJ333	33K
R747,748	ERDS2TJ272	2.7K
R749,750	ERDS2TJ221	220
R751,752	ERDS2TJ221	220
R753	ERDS2TJ561	560
R754	ERDS2TJ152	1.5K
R755	ERDS2TJ101	100
R756	ERDS2TJ221	220
R757	ERDS2TJ151	150
R758	ERDS2TJ102	1K
R760,761	ERDS2TJ104	100K
R762	ERDS2TJ474	470K
R763	ERDS2TJ222	2.2K

Ref. No.	Part No.	Value
R764	ERDS2TJ221	220
R765	ERDS2TJ103	10K
R766	ERDS2TJ222	2.2K
R767	ERDS2TJ473	47K
R768	ERDS2TJ104	100K
R769,770	ERDS2TJ473	47K
R772	ERDS2TJ274	270K
R773	ERDS2TJ103	10K
R774	ERDS2TJ222	2.2K
R775	ERDS2TJ223	22K
R776	ERDS2TJ394	390K
R777	ERDS2TJ222	2.2K
R778	ERDS2TJ153	15K
R779	ERDS2TJ753	75K
R780	ERDS2TJ103	10K
R781	ER0S2AKG3002	30K
R782	ERDS2TJ471	470
R783	ERDS2TJ222	2.2K
R785	ERDS2TJ472	4.7K
R786	ERDS2TJ103	10K
R787,788 ⚠	ERDS1FJ181	180
R789 Ⓢ	ERX1ANJ1R0	1.0

Ref. No.	Part No.	Value
R790	ERDS2TJ681	680
R791	ERDS2TJ101	100
R792 ⚠	ERDS1FJ181	180
R793	ERDS2TJ102	1K
R794	ERDS2TJ471	470
R795	ERDS2TJ472	4.7K
R796 ⚠	ERDS1FJ2R2	2.2
R797,798	ERDS2TJ104	100K
R799	ERDS2TJ104	100K
R801,802	ERDS2TJ153	15K
R803,804	ERDS2TJ102	1K
R805,806	ERDS2TJ104	100K
R807,808	ERDS2TJ104	100K
R809,810	ERDS2TJ332	3.3K
R811,812	ERDS2TJ223	22K
R813,814	ERDS2TJ223	22K
R815,816	ERDS2TJ822	8.2K
R817,818	ERDS2TJ333	33K
R819,820	ERDS2TJ154	150K
R821,822	ERDS2TJ472	4.7K
R823,824	ERDS2TJ274	270K
R825,826	ERDS2TJ333	33K

Ref. No.	Part No.	Value
R827,828	ERDS2TJ682	6.8K
R829,830	ERDS2TJ332	3.3K
R831,832	ERDS2TJ332	3.3K
R833,834	ERDS2TJ223	22K
R835,836	ERDS2TJ472	4.7K
R837,838	ERDS2TJ102	1K
R839,840	ERDS2TJ103	10K
R841,842	ERDS2TJ153	15K
R843,844	ERDS2TJ151	150
R845,846	ERDS2TJ472	4.7K
R847,848	ERDS2TJ153	15K
R849	ERDS2TJ102	1K
R850	ERDS2TJ103	10K
R852	ERDS2TJ563	56K
R853	ERDS2TJ562	5.6K
R854	ERDS2TJ681	680
R855,856	ERDS2TJ151	150
R857,858	ERDS2TJ684	680K
R859,860	ERDS2TJ394	390K
R861,862	ERDS2TJ103	10K
R863	ERDS2TJ221	220
R865,866	ERDS2TJ272	2.7K

Ref. No.	Part No.	Value
R867,868	ERDS2TJ561	560
R870	ERDS2TJ222	2.2K
R872	ERDS2TJ222	2.2K
R873	ERDS2TJ223	22K
R874,875	ERDS2TJ103	10K
R876	ERDS2TJ332	3.3K
R877	ERDS2TJ682	6.8K
R878	ERDS2TJ333	33K
R879	ERDS2TJ103	10K
R880 ⚠	ERDS1FJ8R2	8.2
R881	ERDS2TJ472	4.7K
R883	ERDS2TJ682	6.8K
R884,885	ERDS2TJ102	1K
R886,887	ERDS2TJ102	1K
R888	ERDS2TJ153	15K
R893	ERDS2TJ153	15K
R894	ERDS2TJ822	8.2K
R895	ERDS2TJ102	1K
R897	ERDS2TJ102	1K
R899	ERDS2TJ221	220

● CAPACITORS

Ref. No.	Part No.	Value
C601,602 Ⓢ	ECEA25M4R7R	4.7
C603,604 Ⓢ	ECKD1H221KB	220P
C605,606 Ⓢ	ECQM1H102JZ	0.001
C608,609 Ⓢ	ECQM1H822JZ	0.0082
C610,611 Ⓢ	ECKD1H221KB	220P
C612	ECEA1HU010	1
C613	ECEA1HKS010	1
C614,615	ECEA1AU101	100
C616,617	ECQV05123JC	0.012
C618	ECEA0JU331	330
C619	ECEA1AU221	220
C620	ECEA1CU221	220
C621,622 Ⓢ	ECCD1H470K	47P
C623,624	ECQP1101JZ	100P
C625,626 Ⓢ	ECQM1H102JZ	0.001
C627,628 Ⓢ	ECQM1H823JZ	0.082
C629,630 Ⓢ	ECQM1H563JZ	0.056
C631,632	ECQV05393JC	0.039
C633,634	ECEA1HU010	1
C635,636	ECEA1CU100	10
C637,638	ECEA1HU010	1
C639,640	ECEA1HKLR22	0.22
C643	ECEA1CU470	47
C644	ECQV05223JC	0.022
C645 Ⓢ	ECQM1H822JZ	0.0082
C646	ECQP1153JZ	0.015
C647,648	ECQM1H102JZ	0.001
C701,702	ECEA1HKLR47	0.47
C703,704	ECEA1AU221	220
C705	ECEA1CKS100	10

Ref. No.	Part No.	Value
C706	ECEA1CKS100	10
C707,708	ECQV05333JC	0.033
C709,710 Ⓢ	ECQM1H472JZ	0.0047
C711,712	ECQV05473JC	0.047
C713,714	ECEA1HKLR33	0.33
C715,716	ECQV05104JC	0.1
C717,718	ECEA1CKS100	10
C719	ECEA1CKS100	10
C720,721	ECEA1CU100	10
C722	ECEA1CU100	10
C723,724	ECEA1HKLR47	0.47
C725	ECEA1CU221	220
C727	ECEA1CU220	22
C728,729 Ⓢ	ECQM1H332JZ	0.0033
C730	ECEA1HU010	1
C731	ECEA1HKS010	1
C732	ECEA1HU010	1
C733	ECEA1AU101	100
C734	ECEA1CU100	10
C735	ECQP1471JZ	470P
C736	ECQP1331JZ	330P
C739,740	ECEA1CKS470	47
C741,742	ECEA1CKS100	10
C761 Ⓢ	ECQM1H822JZ	0.0082
C762	ECEA1CU470	47
C763 Ⓢ	ECQM1H683JZ	0.068
C764	ECEA1EU4R7	4.7
C766 Ⓢ	ECKD1H103ZF	0.01
C767	ECEA1CU220	22
C769	ECQV05105JC	1.0

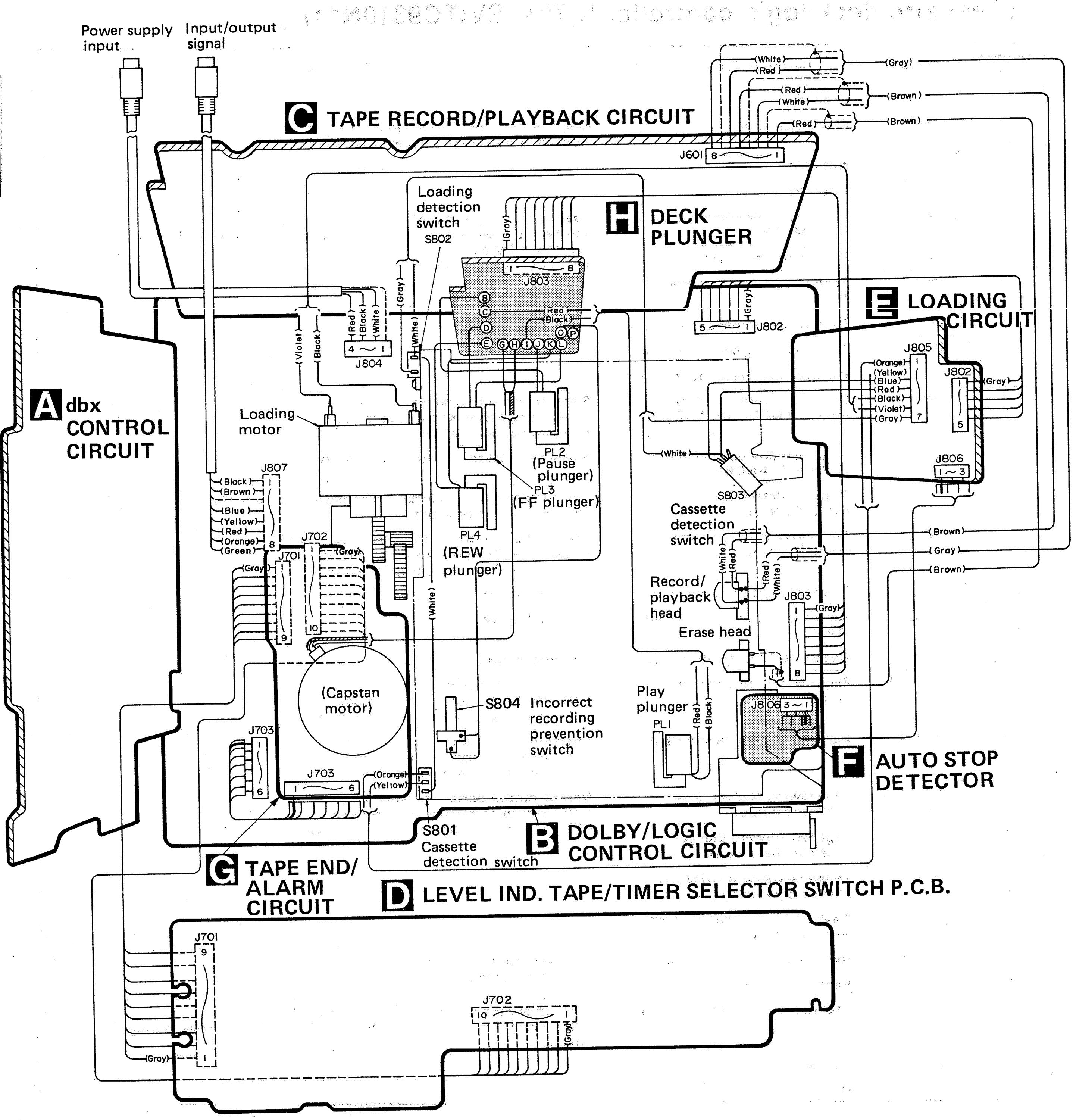
Ref. No.	Part No.	Value
C770	ECEA1CU470	47
C771 Ⓢ	ECKD1H103ZF	0.01
C772 ⚠	ECEA1HN010	1
C773	ECQV05104JC	0.1
C774	ECEA1HU010	1
C775	ECEA1HKLR47	0.47
C776 Ⓢ	ECKD1H103ZF	0.01
C777	ECQP1562JZ	0.0056
C778 Ⓢ	ECKD1H103ZF	0.01
C779	ECEA1EU4R7	4.7
C780,781	ECEA0JKS101	100
C782	ECEA1CU100	10
C783	ECEA0JKS101	100
C784	ECEA1CU331	330
C785	ECEA1CU221	220
C786	ECEA1CU220	22
C787	ECEA1VU222	2200
C790,791	ECEA1HKLR22	0.22
C801,802	ECEA1HKLR22	0.22
C803,804	ECQV05104JC	0.1
C805,806	ECQV05104JC	0.1
C807,808 Ⓢ	ECQM1H332JZ	0.0033
C809,810 Ⓢ	ECQM1H332JZ	0.0033
C811,812	ECQP1331JZ	330P
C813,814	ECEA1CU100	10
C815,816	ECEA1HKS010	1
C817,818	ECQV05223JC	0.022
C819,820	ECQP1471JZ	470P
C821,822 Ⓢ	ECEA50MR68R	0.68
C823,824 Ⓢ	ECEA16M10R	10.0

Ref. No.	Part No.	Value
C825,826	ECQV05333JC	0.033
C827,828	ECEA1HKLR33	0.33
C829,830 Ⓢ	ECQM1H472JZ	0.0047
C831,832	ECEA1CU470	47
C833,834	ECQP1391JZ	390P
C835,836	ECQV05223JC	0.022
C837	ECEA1CU100	10
C838	ECEA1HU010	1
C839	ECEA1CU100	10
C840	ECEA0JU331	330
C841,842	ECEA1AU221	220
C843,844	ECEA1CU220	22
C845,846	ECEA1CU100	10
C847	ECEA1CU470	47
C849,850 Ⓢ	ECQM1H103JZ	0.01
C851	ECQV05104JC	0.1
C870	ECEA1CU100	10
C871	ECEA1AU221	220
C872 ⚠	ECEA1CN100	10
C873	ECEA1AU101	100
C874	ECEA1HKS010	1

■ FUNCTION OF TERMINAL
(Cassette deck logic controller IC704, SVITC9310N11)

Terminal No.	Symbol	Name of Terminal	Description
1	GND	Ground	――――――
2	OSC	Clock oscillation	Single-terminal oscillation circuit that oscillates clock. • Standard oscillation frequency is 128kHz.
3	CL	Not used	――――――
4	IN1	Not used	――――――
5	IN2	Mute recording command input (REC MUTE)	Used as normal input port • Either "L" level active or "H" level active can be selected by key matrix ROM data. • This unit is "L" level active.
6	IN3	Stop command (STOP)	
7	IN4	Tape fast forward command input (FF)	
8	IN5	Recording command input (REC)	
9	IN6	Tape rewinding command input	
10	IN7	Playback command input (PLAY)	
11	IN8	Synchro recording command input (SYNCRO REC DET)	Single terminal to operate 2 input ports. • Recording begins when input is 0V. • Recording stands by when input is 5V.
12	IN9	Timer standby command input (TIMER STANDBY)	Single terminal to operate 2 input ports.
13	IN10	Rotation detecting command input (RUN DET)	The number of input clocks is counted according to the command of ET (enable timer) in program.
14	I/O-1	Temporary stop command output (PAUSE)	Used as input/output port. ("H" level active) • Input → Temporary stop command • Output → Temporary stop indicator drive
15	I/O-2	Playback indicator drive output	"H" level active.
16	I/O-3	Auto cueing command output (TPS)	"H" level active.
17	I/O-4	Recording indicator drive output	"H" level active.
18	OUT-10	Playback muting command output	Inversion output port • "H" level with motor in drive mode. • "L" level with motor not in drive mode.
19	OUT-9	Motor drive command output	Inversion output port • "H" level with motor in drive mode. • "L" level with motor not in drive mode.
20	OUT-8	Tape rewind plunger drive command output	Normal output ports – bi-polar outputs. • "H" level with plunger in drive mode. • "L" level with plunger not in drive mode.
21	OUT-7	Tape fast forward plunger drive command output	
22	OUT-6	Temporary stop (PAUSE)/stop plunger drive command output	
23	OUT-5	Playback/record plunger drive command output	
24	OUT-4	Recording command output	Normal output ports – bi-polar outputs. • "H" level active.
25	OUT-3	Recording command output	
26	OUT-2	Record muting command output	• "H" level for a moment with rec switch ON. • "H" level for 3 – 4 sec. when REC MUTE switch is pressed during recording mode.
27	OUT-1	Not used.	――――――
28	VDD	+5.3V	――――――

■ WIRING CONNECTION DIAGRAM

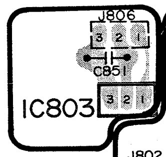

Power supply input
Input/output signal
C TAPE RECORD/PLAYBACK CIRCUIT
J601
(White)
(Red)
(Gray)
(Red)
(White)
(Brown)
(Red)
(Brown)
Loading detection switch
S802
H DECK PLUNGER
J803
(Gray)
(Red)
(Black)
(White)
(Violet)
J804
J802
E LOADING CIRCUIT
J805
(Orange)
(Yellow)
(Blue)
(Red)
(Black)
(Violet)
(Gray)
J806
A dbx CONTROL CIRCUIT
Loading motor
PL2 (Pause plunger)
PL3 (FF plunger)
PL4 (REW plunger)
J807
(Black)
(Brown)
(Blue)
(Yellow)
(Red)
(Orange)
(Green)
J702
J701
S803
Cassette detection switch
Record/ playback head
Erase head
(Capstan motor)
J703
S804 Incorrect recording prevention switch
Play plunger
PL1
F AUTO STOP DETECTOR
S801 Cassette detection switch
B DOLBY/LOGIC CONTROL CIRCUIT
G TAPE END/ ALARM CIRCUIT
D LEVEL IND. TAPE/TIMER SELECTOR SWITCH P.C.B.

■ PRINTED CIRCUIT BOARDS

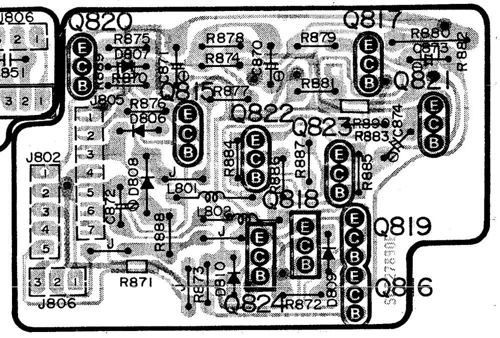
Circuit view on top of P.C.B.

Printed carbon resistor

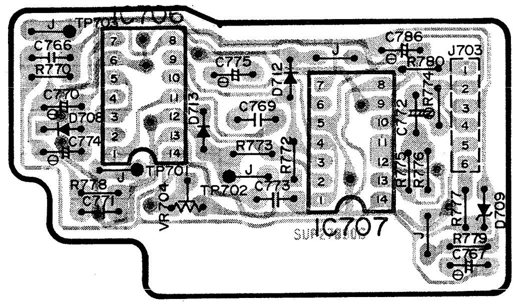
F AUTO STOP DETECTOR P.C.B.


J806
C851
IC803

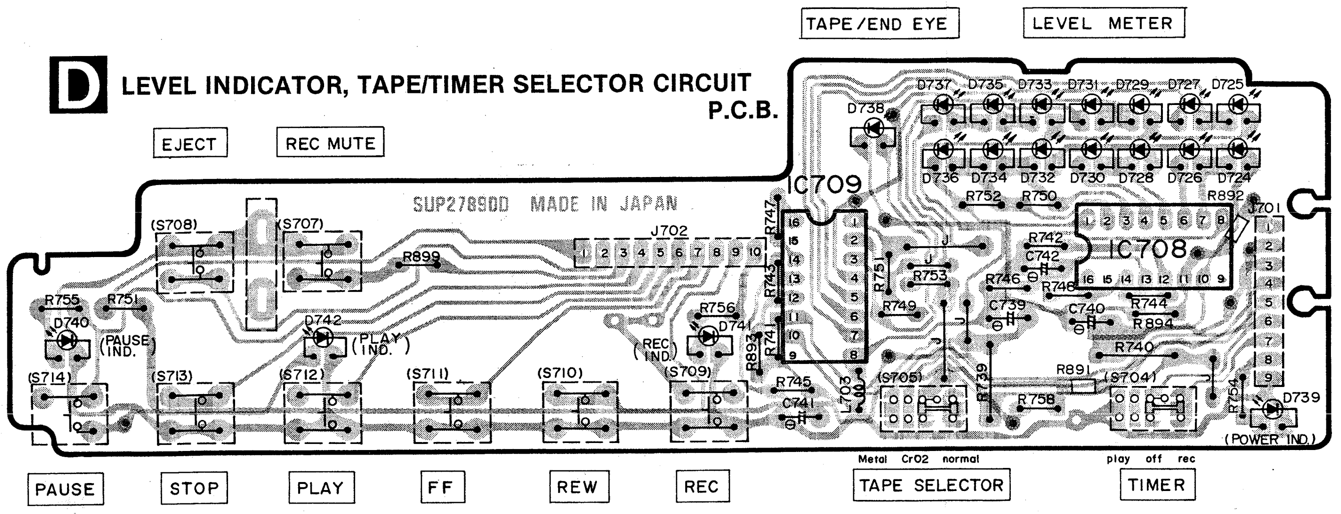
E LOADING CIRCUIT P.C.B.


Q820
Q817
Q815
Q822
Q823
Q821
Q818
Q819
Q824
Q816
J802
J805
J806

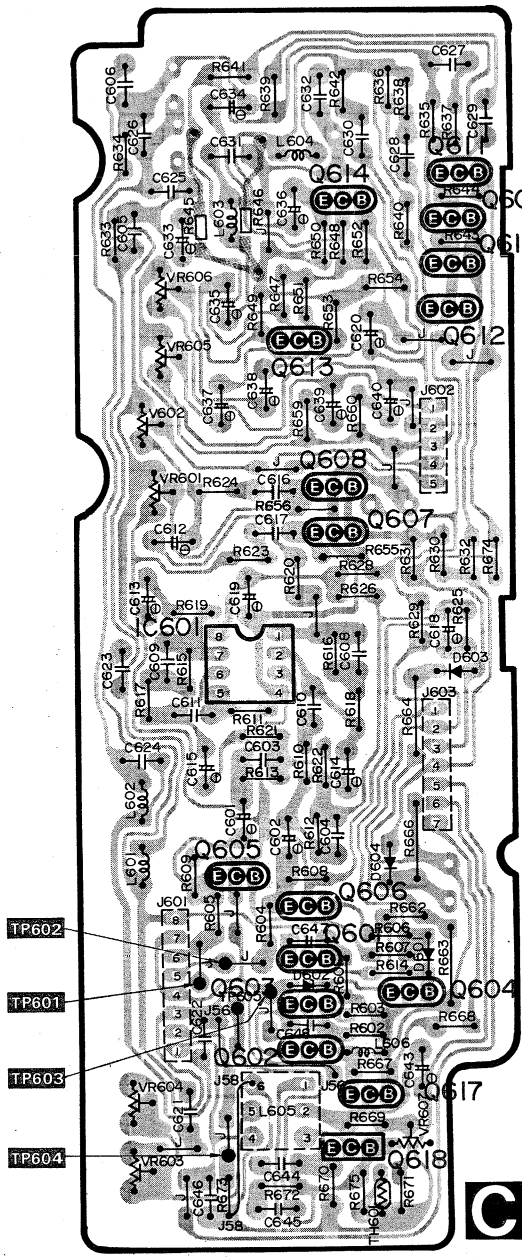
G TAPE END/ALARM CIRCUIT P.C.B.


IC706
IC707
J703
TP701
TP702

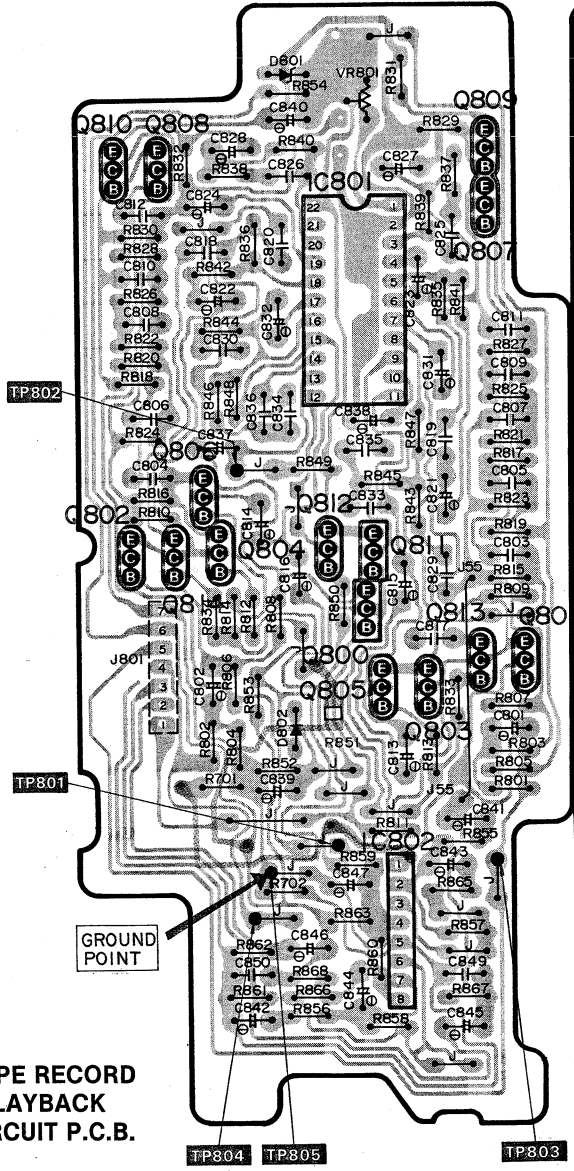
D LEVEL INDICATOR, TAPE/TIMER SELECTOR CIRCUIT P.C.B.


TAPE/END EYE
LEVEL METER
EJECT
REC MUTE
SUP278S0D MADE IN JAPAN
IC709
IC708
J701
J702
(PAUSE IND.)
(PLAY IND.)
REC IND.
(POWER IND.)
PAUSE
STOP
PLAY
FF
REW
REC
Metal CrO2 normal
TAPE SELECTOR
play off rec
TIMER

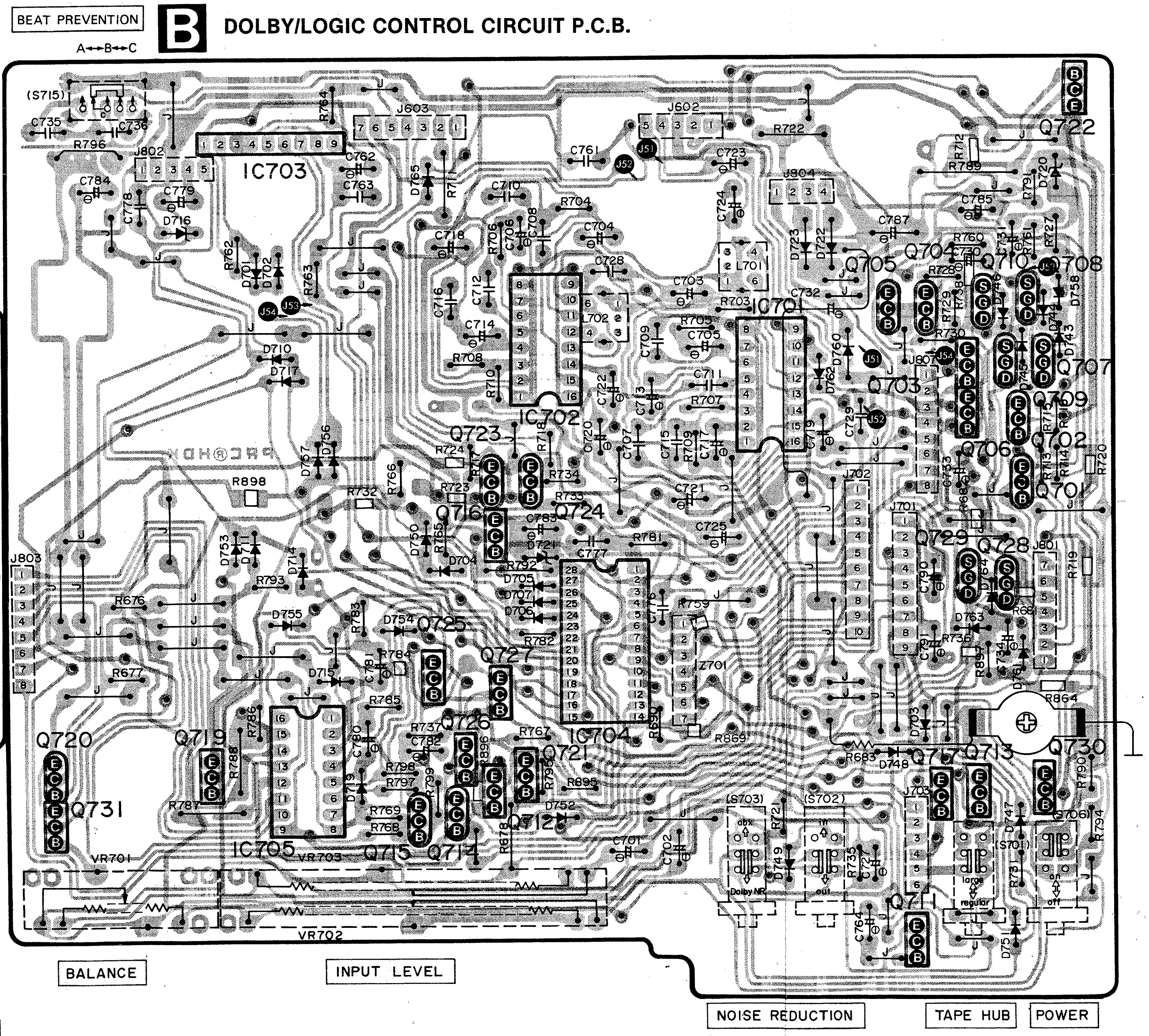
C TAPE RECORD /PLAYBACK CIRCUIT P.C.B.


IC601
Q601
Q602
Q603
Q604
Q605
Q606
Q607
Q608
Q609
Q610
Q611
Q612
Q613
Q614
Q617
Q618
TP601
TP602
TP603
TP604

A dbx CONTROL CIRCUIT P.C.B.


IC801
IC802
Q801
Q802
Q803
Q804
Q805
Q806
Q807
Q808
Q809
Q810
Q811
Q812
Q813
J801
TP801
TP802
TP803
TP804
TP805
GROUND POINT

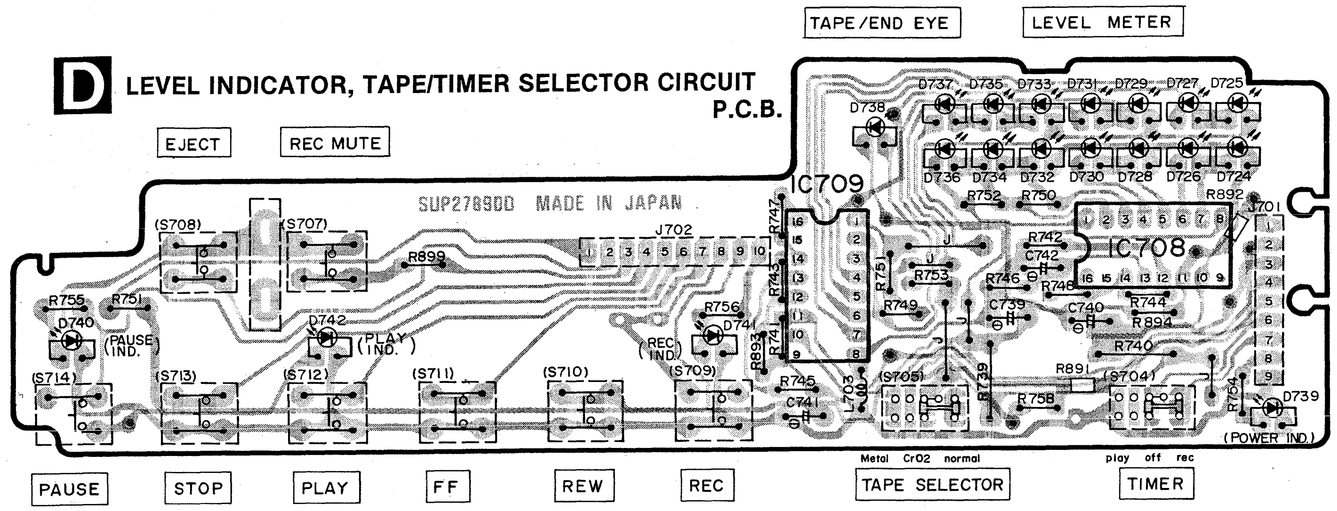
B DOLBY/LOGIC CONTROL CIRCUIT P.C.B.


BEAT PREVENTION
A↔B↔C
IC701
IC702
IC703
IC704
IC705
J601
J602
J603
J701
J702
J703
J704
J802
J803
Q701
Q702
Q703
Q704
Q705
Q706
Q707
Q708
Q709
Q710
Q711
Q712
Q713
Q714
Q715
Q716
Q717
Q719
Q720
Q721
Q722
Q723
Q724
Q725
Q726
Q727
Q728
Q729
Q730
Q731
VR701
VR702
VR703
Dolby NR
BALANCE
INPUT LEVEL
NOISE REDUCTION
TAPE HUB
POWER

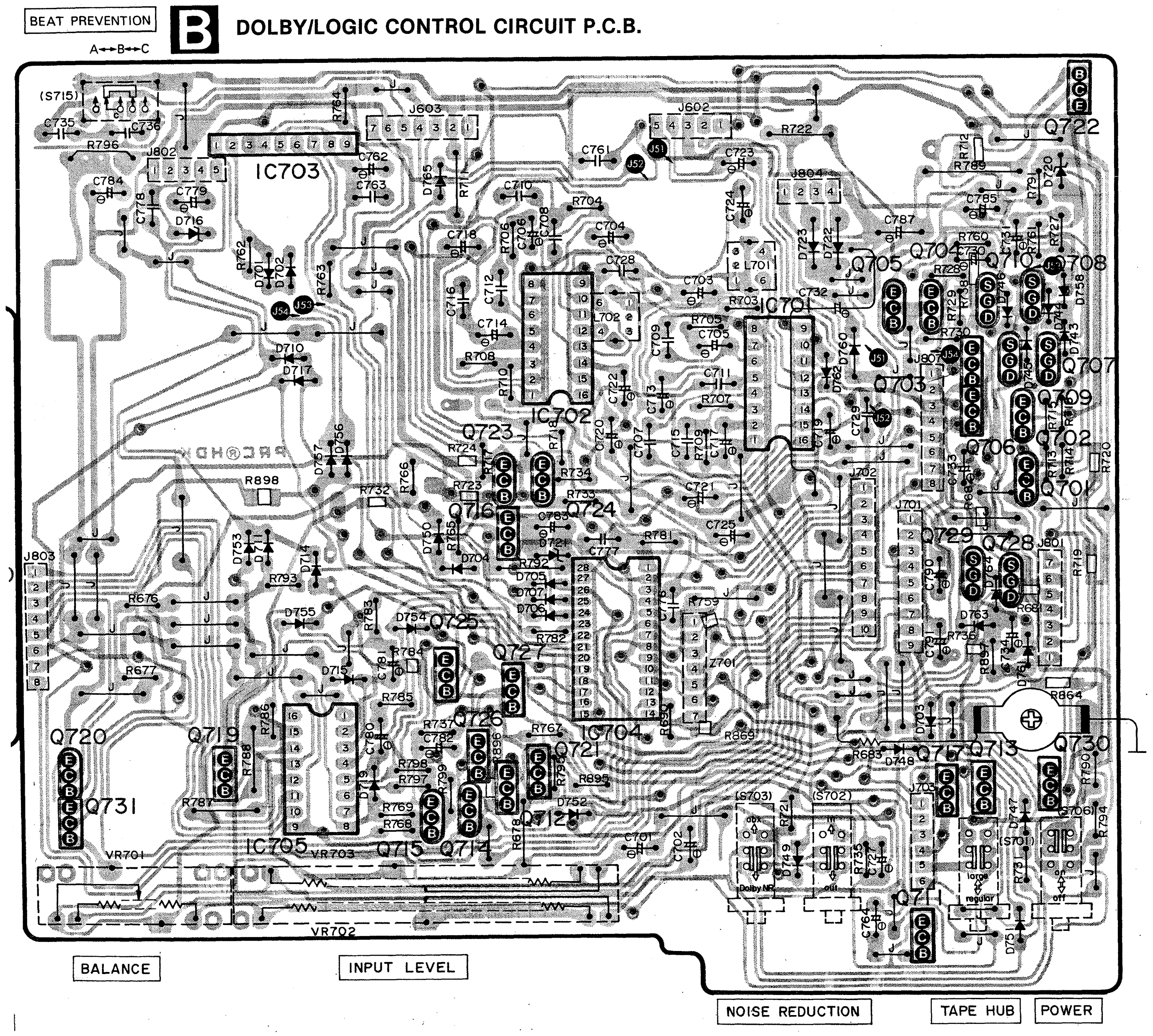
.C.B.

▭ Printed carbon resistor

D LEVEL INDICATOR, TAPE/TIMER SELECTOR CIRCUIT P.C.B.

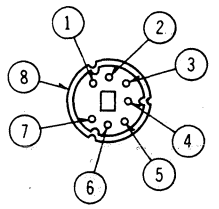

TAPE/END EYE
LEVEL METER
EJECT
REC MUTE
SUP27890D MADE IN JAPAN
IC709
IC708
J702
J701
(PAUSE IND.)
(PLAY IND.)
(REC IND.)
(POWER IND.)
Metal CrO2 normal
play off rec
PAUSE
STOP
PLAY
FF
REW
REC
TAPE SELECTOR
TIMER

B DOLBY/LOGIC CONTROL CIRCUIT P.C.B.


BEAT PREVENTION
A↔B↔C
IC703
IC702
IC701
IC704
IC705
J603
J602
J802
J804
J803
J701
J702
J801
VR701
VR702
VR703
BALANCE
INPUT LEVEL
NOISE REDUCTION
TAPE HUB
POWER

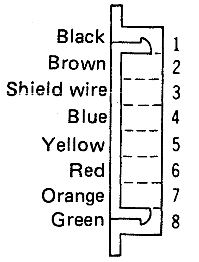
■ SIGNAL LEAD WIRE AND POWER SUPPLY WIRE

Signal lead wire

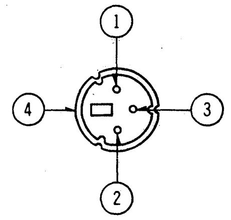


Cord side pin No.			Connector side J807
6	Play out (R ch.)	Black	1
5	Play out (L ch.)	Brown	2
8	Ground	Shield wire	3
7	Shield wire	Blue	4
4	Stop	Yellow	5
2	Rec in (R ch.)	Red	6
3	Rec in (L ch.)	Orange	7
1	Play signal	Green	8

Connector (J807)

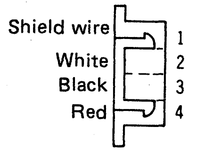

Black
Brown
Shield wire
Blue
Yellow
Red
Orange
Green
1
2
3
4
5
6
7
8

Power supply lead wire

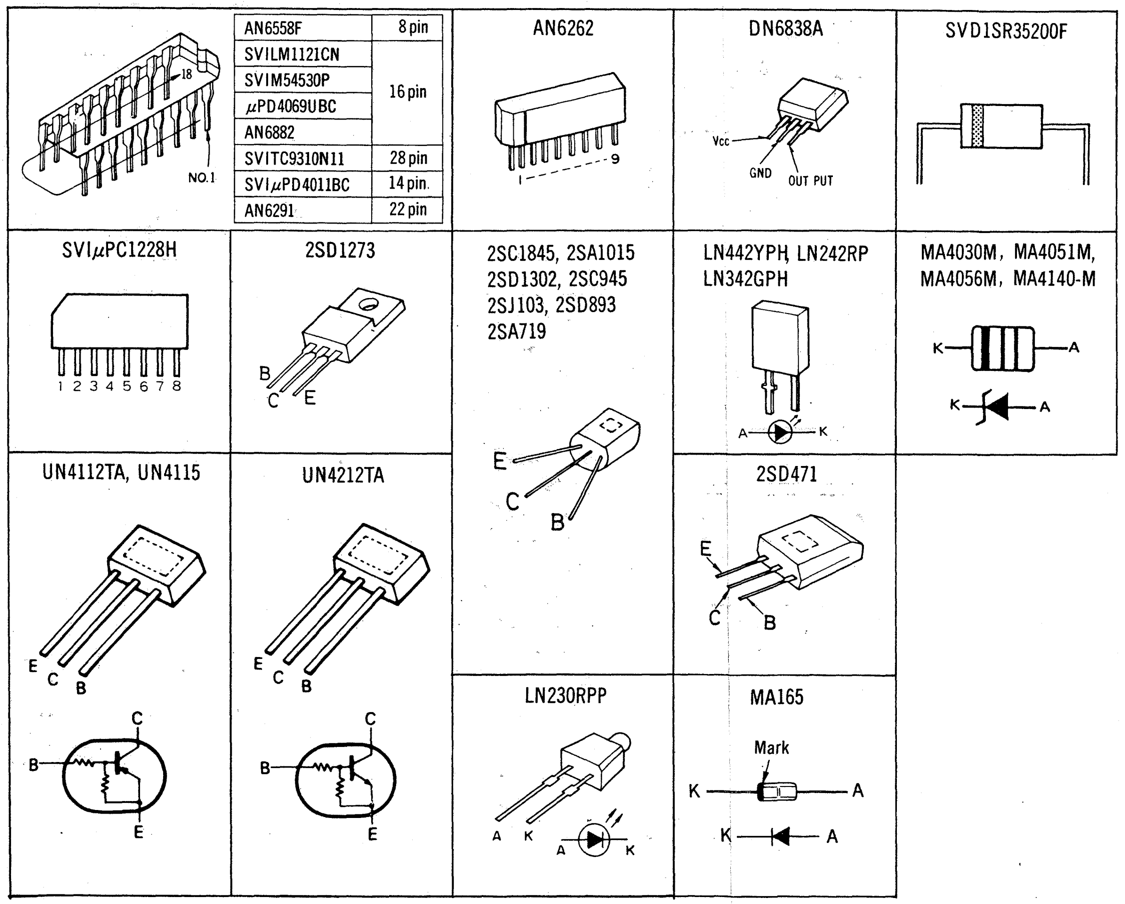


Cord side pin No.			Connector side J804
4	Ground	Shield wire	1
2	AC 20V	White	2
3	Ground	Black	3
1	AC 20V	Red	4

Connector (J804)


Shield wire
White
Black
Red
1
2
3
4

- **Terminal guide of transistors, IC's and diodes**

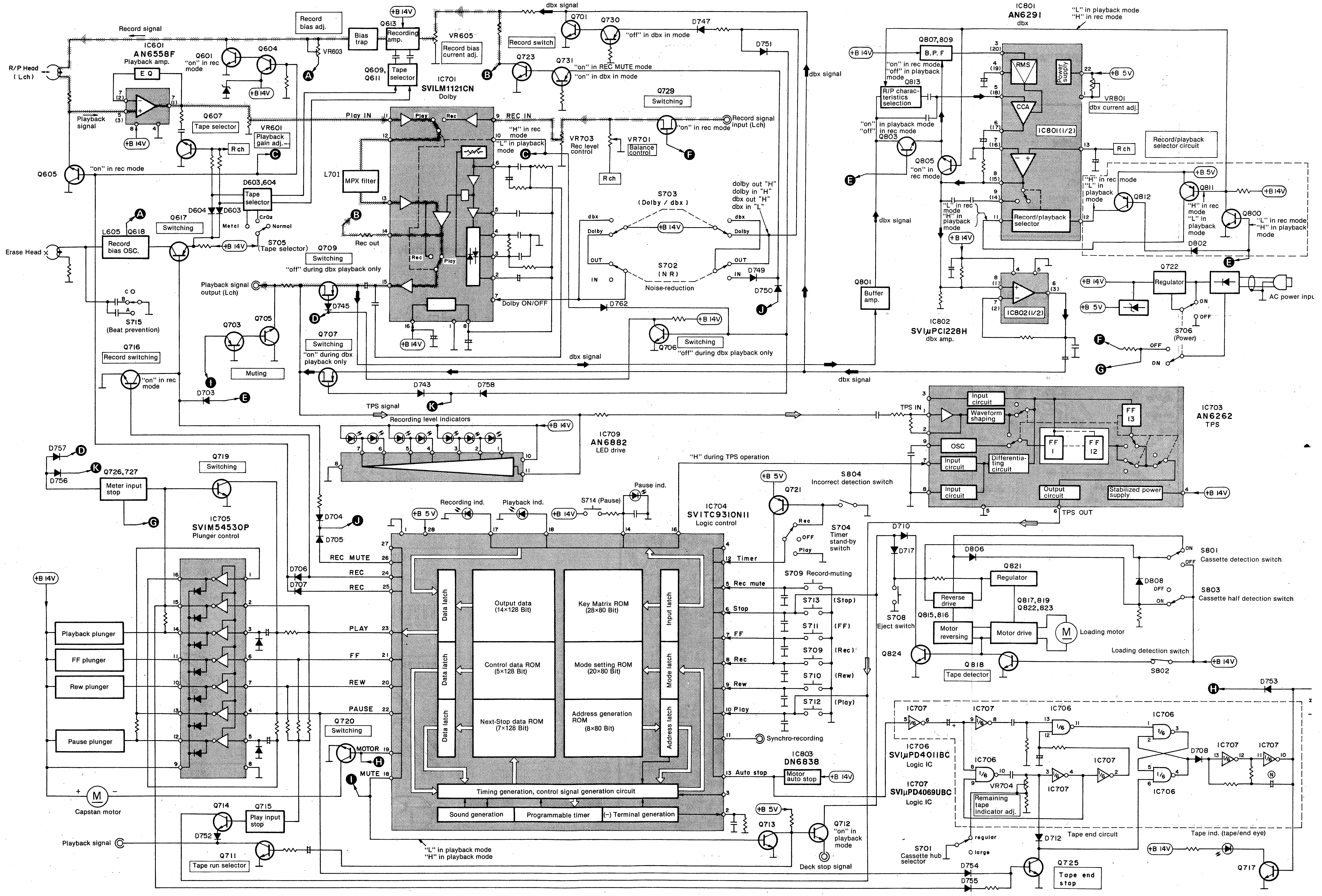


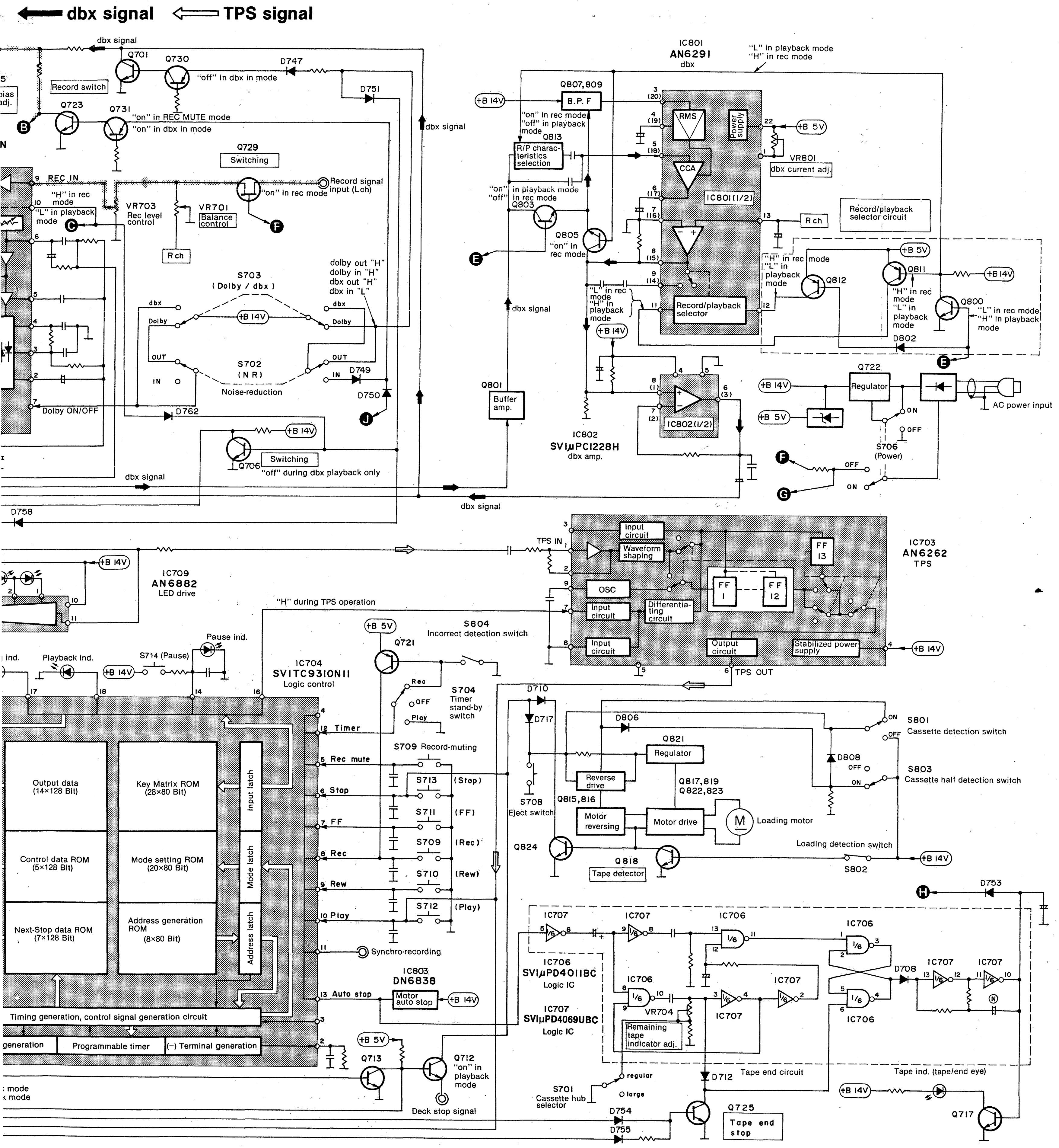
AN6558F	8pin
SVILM1121CN SVIM54530P μPD4069UBC AN6882	16pin
SVITC9310N11	28pin
SVIμPD4011BC	14pin
AN6291	22pin

18
NO.1
AN6262
1
9
DN6838A
Vcc
GND
OUT PUT
SVD1SR35200F
SVIμPC1228H
1 2 3 4 5 6 7 8
2SD1273
B
C
E
2SC1845, 2SA1015
2SD1302, 2SC945
2SJ103, 2SD893
2SA719
E
C
B
LN442YPH, LN242RP
LN342GPH
A
K
MA4030M, MA4051M,
MA4056M, MA4140-M
K
A
K
A
UN4112TA, UN4115
E
C
B
C
B
E
UN4212TA
E
C
B
C
B
E
2SD471
E
C
B
LN230RPP
A K
A
K
MA165
Mark
K
A
K
A

■ BLOCK DIAGRAM

Playback signal   Record signal   dbx signal   TPS signal


R/P Head (Lch)
Record signal
IC601 AN6558F Playback amp.
EQ
Playback signal
Q601 "on" in rec mode
Q604
Q605 "on" in rec mode
Q607 Tape selector
VR601 Playback gain adj.
Rch
D603,604 Tape selector
D604 D603
Metal CrO2 Normal
S705 (Tape selector)
Q617 Switching
L605 Q618 Record bias OSC.
Erase Head
S715 (Beat prevention)
Q716 Record switching
"on" in rec mode
D703
Record bias adj.
VR603
Bias trap
Q613 Recording amp.
VR605 Record bias current adj.
Q609, Q611 Tape selector
IC701 SVILM1121CN Dolby
Play IN
Play Rec
REC IN
"H" in rec mode
"L" in playback mode
L701 MPX filter
Rec out
Dolby ON/OFF
Playback signal output (Lch)
Q709 Switching "off" during dbx playback only
D745
Q703 Q705
Muting
Q707 Switching "on" during dbx playback only
D743 D758
TPS signal
Recording level indicators
IC709 AN6882 LED drive
dbx signal
Record switch
Q701 Q730 "off" in dbx in mode
D747 D751
Q723 Q731 "on" in REC MUTE mode "on" in dbx in mode
Q729 Switching
Record signal input (Lch)
"on" in rec mode
VR703 Rec level control
VR701 Balance control
S703 (Dolby / dbx)
dbx Dolby OUT IN
S702 (NR) Noise-reduction
dolby out "H" dolby in "H" dbx out "H" dbx in "L"
D749 D750 D762
Q706 Switching "off" during dbx playback only
IC801 AN6291 dbx
"L" in playback mode "H" in rec mode
Q807,809 B.P.F
"on" in rec mode "off" in playback mode Q813
R/P characteristics selection
"on" in playback mode "off" in rec mode Q803
Q805 "on" in rec mode
RMS CCA Power supply
VR801 dbx current adj.
IC801(1/2)
Record/playback selector circuit
Record/playback selector
"H" in rec mode "L" in playback mode
Q812 Q811 Q800
"H" in rec mode "L" in playback mode
"L" in rec mode "H" in playback mode
D802
Q801 Buffer amp.
IC802 SVIμPC1228H dbx amp.
IC802(1/2)
Q722 Regulator
AC power input
S706 (Power) ON OFF
IC703 AN6262 TPS
TPS IN
Input circuit
Waveform shaping
OSC
Differentiating circuit
FF 1 FF 12 FF 13
Output circuit
Stabilized power supply
TPS OUT
"H" during TPS operation
D757 D756 Q726,727 Meter input stop
Q719 Switching
IC705 SVIM54530P Plunger control
Playback plunger
FF plunger
Rew plunger
Pause plunger
Capstan motor
D704 D705 D706 D707
REC MUTE REC REC PLAY FF REW PAUSE MOTOR MUTE
Q720 Switching
Q714 Q715 Play input stop
D752
Q711 Tape run selector
Playback signal
Recording ind. Playback ind. S714 (Pause) Pause ind.
IC704 SVITC9310NII Logic control
Data latch
Output data (14×128 Bit)
Key Matrix ROM (28×80 Bit)
Input latch
Control data ROM (5×128 Bit)
Mode setting ROM (20×80 Bit)
Mode latch
Next-Stop data ROM (7×128 Bit)
Address generation ROM (8×80 Bit)
Address latch
Timing generation, control signal generation circuit
Sound generation
Programmable timer
(−) Terminal generation
"L" in playback mode "H" in playback mode
Q721
S804 Incorrect detection switch
Rec OFF Play
S704 Timer stand-by switch
Timer Rec mute Stop FF Rec Rew Play Auto stop
S709 Record-muting
S713 (Stop)
S711 (FF)
S709 (Rec)
S710 (Rew)
S712 (Play)
Synchro-recording
IC803 DN6838 Motor auto stop
Q713 Q712 "on" in playback mode
Deck stop signal
D710 D717
S708 Eject switch
D806
Q821 Regulator
Reverse drive
Q815,816
Q817,819 Q822,823
Motor reversing
Motor drive
Loading motor
D808
S801 Cassette detection switch
S803 Cassette half detection switch
Loading detection switch
Q824
Q818 Tape detector
S802
D753
IC707 IC706
IC706 SVIμPD4011BC Logic IC
IC707 SVIμPD4069UBC Logic IC
VR704 Remaining tape indicator adj.
D708
S701 Cassette hub selector regular large
D712 Tape end circuit
Tape ind. (tape/end eye)
D754 D755
Q725 Tape end stop
Q717
+B 14V
+B 5V

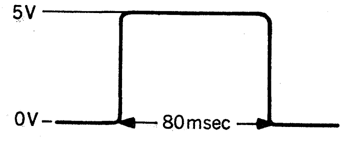

dbx signal
TPS signal
Record switch
Q701
Q730
"off" in dbx in mode
D747
D751
Q723
Q731
"on" in REC MUTE mode
"on" in dbx in mode
Q729
Switching
REC IN
"H" in rec mode
"L" in playback mode
VR703
Rec level control
VR701
Balance control
Record signal input (Lch)
"on" in rec mode
R ch
S703
(Dolby / dbx)
dolby out "H"
dolby in "H"
dbx out "H"
dbx in "L"
S702
(N R)
Noise-reduction
D749
D750
Dolby ON/OFF
D762
Q706
Switching
"off" during dbx playback only
dbx signal
D758
IC801
AN6291
dbx
"L" in playback mode
"H" in rec mode
Q807,809
B.P.F
"on" in rec mode
"off" in playback mode
Q813
R/P characteristics selection
RMS
Power supply
VR801
dbx current adj.
CCA
IC801(1/2)
"on" in playback mode
"off" in rec mode
Q803
Q805
"on" in rec mode
R ch
Record/playback selector circuit
"H" in rec mode
"L" in playback mode
Q812
Q811
Q800
"L" in rec mode
"H" in playback mode
D802
Record/playback selector
dbx signal
Q801
Buffer amp.
IC802
SVIμPC1228H
dbx amp.
IC802(1/2)
Q722
Regulator
AC power input
S706
(Power)
Input circuit
Waveform shaping
TPS IN
OSC
Input circuit
Differentiating circuit
Input circuit
FF 1
FF 12
FF 13
Output circuit
Stabilized power supply
TPS OUT
IC703
AN6262
TPS
IC709
AN6882
LED drive
"H" during TPS operation
Q721
S804
Incorrect detection switch
Playback ind.
S714 (Pause)
Pause ind.
IC704
SVITC9310NII
Logic control
S704
Timer stand-by switch
Timer
Rec mute
Stop
FF
Rec
Rew
Play
Auto stop
S709 Record-muting
S713 (Stop)
S711 (FF)
S709 (Rec)
S710 (Rew)
S712 (Play)
Synchro-recording
IC803
DN6838
Motor auto stop
Output data (14×128 Bit)
Key Matrix ROM (28×80 Bit)
Input latch
Control data ROM (5×128 Bit)
Mode setting ROM (20×80 Bit)
Mode latch
Next-Stop data ROM (7×128 Bit)
Address generation ROM (8×80 Bit)
Address latch
Timing generation, control signal generation circuit
Programmable timer
(–) Terminal generation
Q713
Q712
"on" in playback mode
Deck stop signal
D710
D717
D806
Q821
Regulator
S801
Cassette detection switch
D808
S803
Cassette half detection switch
S708
Eject switch
Q815,816
Reverse drive
Q817,819
Q822,823
Motor reversing
Motor drive
Loading motor
Loading detection switch
S802
Q824
Q818
Tape detector
D753
IC707
IC706
SVIμPD4011BC
Logic IC
SVIμPD4069UBC
Logic IC
VR704
Remaining tape indicator adj.
D708
S701
Cassette hub selector
regular
large
D712
Tape end circuit
Tape ind. (tape/end eye)
Q717
D754
D755
Q725
Tape end stop

■ TERMINAL VOLTAGE OF LOGIC IC (IC704)

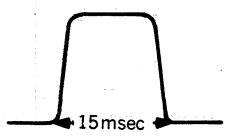
H : More than 4.5V · M : 2.5V · L : 0V

Mode / Terminal	PLAY	FF	REW	REC (PAUSE)	REC (PLAY)	STOP	PAUSE	Auto repeat PLAY
5	H	H	H	H	H	H	H	H
6	H	H	H	H	H	H	H	H
7	H	H	H	H	H	H	H	H
8	H	H	H	H	H	H	H	H
9	H	H	H	H	H	H	H	H
10	H	H	H	H	H	H	H	H
11	M	M	M	M	M	M	M	M
12	M	M	M	M	M	M	M	M
13	Waveform ❶	Waveform ❷	Waveform ❸	L	Waveform ❹	L	L	M
14	L	L	L	H	L	L	L	L
15	H	L	L	L	L	L	L	L
16	L	L	L	L	L	L	L	L
17	L	L	L	H	H	L	L	L
18	L	H	L	H	H	H	H	L
19	H	H	L	H	H	L	H	H
20	L	L	H	L	L	L	L	L
21	L	H	L	L	L	L	L	L
22	L	L	L	H	L	L	H	L
23	H	L	L	H	H	L	H	H
24	L	L	L	H	H	L	L	L
25	L	L	L	L	L	L	L	L
26	L	L	L	L	L	L	L	L
27	L	L	L	L	L	L	L	L
28	H	H	H	H	H	H	H	H

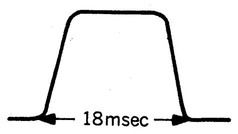
Waveform ❶



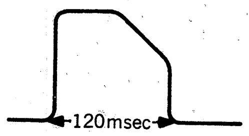
Waveform ❷



Waveform ❸

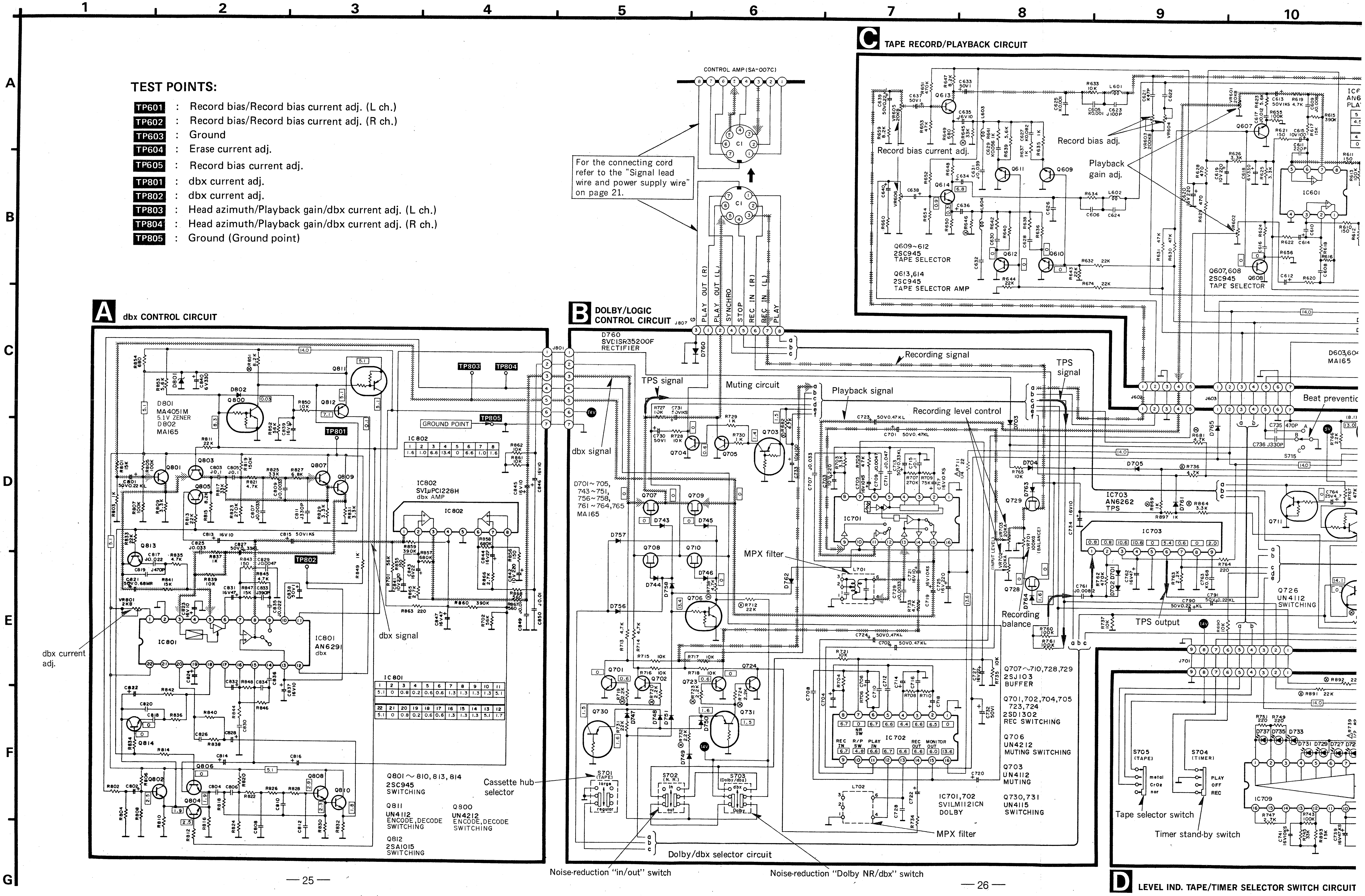


Waveform ❹

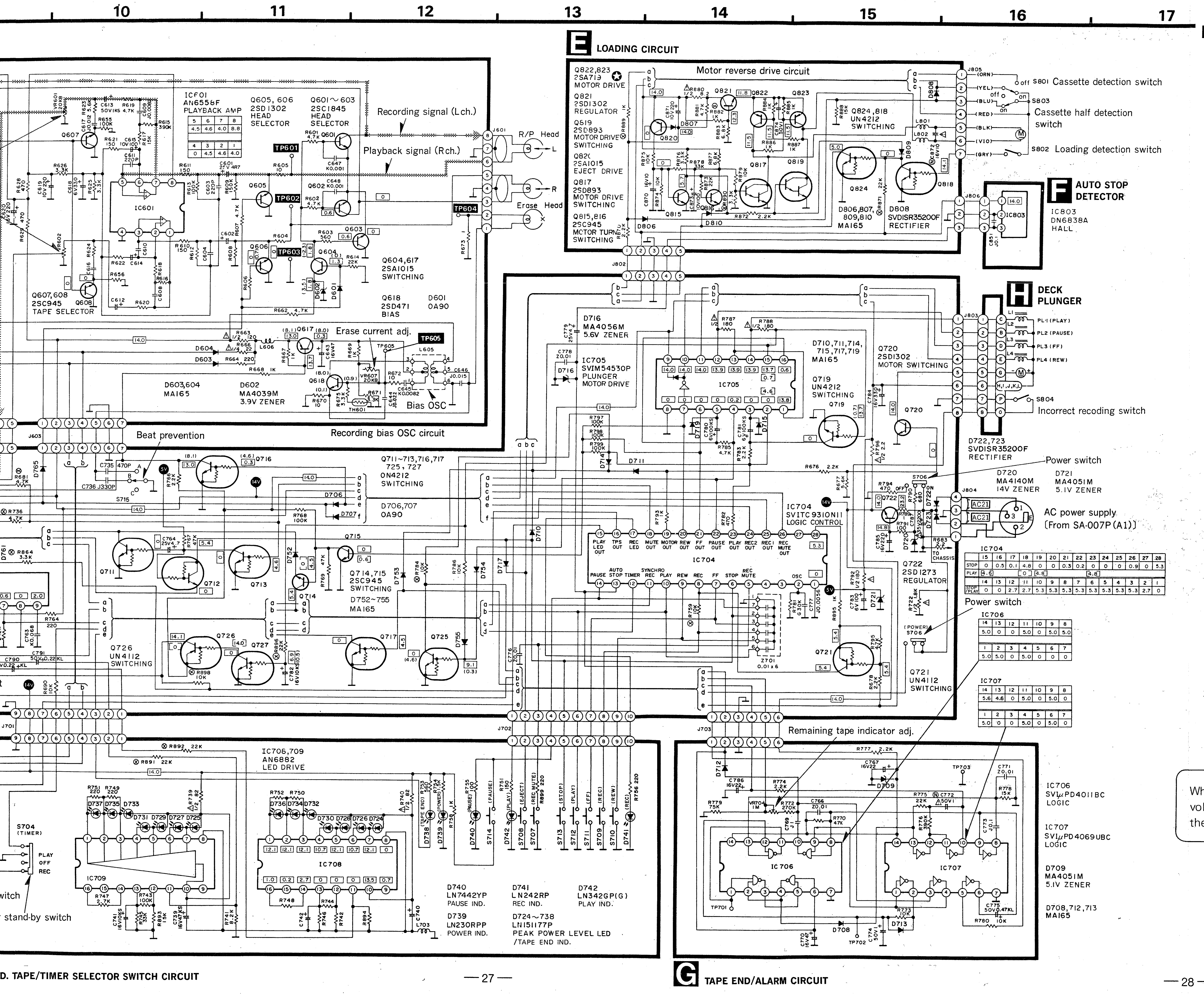


TEST POINTS:

TP601	:	Record bias/Record bias current adj. (L ch.)
TP602	:	Record bias/Record bias current adj. (R ch.)
TP603	:	Ground
TP604	:	Erase current adj.
TP605	:	Record bias current adj.
TP801	:	dbx current adj.
TP802	:	dbx current adj.
TP803	:	Head azimuth/Playback gain/dbx current adj. (L ch.)
TP804	:	Head azimuth/Playback gain/dbx current adj. (R ch.)
TP805	:	Ground (Ground point)



1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F
G
A dbx CONTROL CIRCUIT
B DOLBY/LOGIC CONTROL CIRCUIT
C TAPE RECORD/PLAYBACK CIRCUIT
D LEVEL IND. TAPE/TIMER SELECTOR SWITCH CIRCUIT
CONTROL AMP (SA-007C)
For the connecting cord refer to the "Signal lead wire and power supply wire" on page 21.
G
PLAY OUT (R)
PLAY OUT (L)
SYNCHRO
STOP
REC IN (R)
REC IN (L)
PLAY
J807
J801
J602
J603
J701
D760 SVD1SR35200F RECTIFIER
TP803
TP804
TP805
TP801
TP802
GROUND POINT
D801 MA4051M 5.1V ZENER
D802 MA165
IC802 SVIμPC1228H dbx AMP
IC801 AN6291 dbx
IC802
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
| 1.6 | 1.0 | 6.6 | 13.4 | 0 | 6.6 | 1.0 | 1.6 |
IC801
1	2	3	4	5	6	7	8	9	10	11
5.1	0	0.8	0.2	0.6	0.6	1.3	1.3	1.3	1.3	5.1
22	21	20	19	18	17	16	15	14	13	12
5.1	0	0.8	0.2	0.6	0.6	1.3	1.3	1.3	5.1	1.7
dbx current adj.
dbx signal
Q801~810, 813, 814 2SC945 SWITCHING
Q811 UN4112 ENCODE, DECODE SWITCHING
Q800 UN4212 ENCODE, DECODE SWITCHING
Q812 2SA1015 SWITCHING
VR801 2KB
TPS signal
Muting circuit
Playback signal
Recording signal
Recording level control
MPX filter
Recording balance
TPS output
D701~705, 743~751, 756~758, 761~764, 765 MA165
IC701
IC702
IC703 AN6262 TPS
L701
L702
Q707~710, 728, 729 2SJ103 BUFFER
Q701, 702, 704, 705, 723, 724 2SD1302 REC SWITCHING
Q706 UN4212 MUTING SWITCHING
Q703 UN4112 MUTING
Q730, 731 UN4115 SWITCHING
IC701, 702 SVILM1121CN DOLBY
Q726 UN4112 SWITCHING
S701 (TAPE) large regular
S702 (N.R.) in out
S703 (Dolby/dbx) dbx Dolby
Cassette hub selector
Dolby/dbx selector circuit
Noise-reduction "in/out" switch
Noise-reduction "Dolby NR/dbx" switch
MPX filter
S715
Beat prevention
Record bias current adj.
Record bias adj.
Playback gain adj.
Q609~612 2SC945 TAPE SELECTOR
Q613, 614 2SC945 TAPE SELECTOR AMP
Q607, 608 2SC945 TAPE SELECTOR
IC601
D603, 604 MA165
S705 (TAPE) metal CrO2 nor
S704 (TIMER) PLAY OFF REC
Tape selector switch
Timer stand-by switch
IC709
14V
5V


10
11
12
13
14
15
16
17
E LOADING CIRCUIT
Motor reverse drive circuit
Q822,823 2SA719 MOTOR DRIVE
Q821 2SD1302 REGULATOR
Q819 2SD893 MOTOR DRIVE SWITCHING
Q820 2SA1015 EJECT DRIVE
Q817 2SD893 MOTOR DRIVE SWITCHING
Q815,816 2SC945 MOTOR TURN SWITCHING
Q824,818 UN4212 SWITCHING
D806,807,809,810 MA165
D808 SVDISR35200F RECTIFIER
S801 Cassette detection switch
S803 Cassette half detection switch
S802 Loading detection switch
F AUTO STOP DETECTOR
IC803 DN6838A HALL
H DECK PLUNGER
PL1 (PLAY)
PL2 (PAUSE)
PL3 (FF)
PL4 (REW)
S804 Incorrect recoding switch
D722,723 SVDISR35200F RECTIFIER
Power switch
D720 MA4140M 14V ZENER
D721 MA4051M 5.1V ZENER
AC power supply (From SA-007P (A1))
Q722 2SD1273 REGULATOR
Q721 UN4112 SWITCHING
Q720 2SD1302 MOTOR SWITCHING
Q719 UN4212 SWITCHING
D710,711,714,715,717,719 MA165
D716 MA4056M 5.6V ZENER
IC705 SVIM54530P PLUNGER MOTOR DRIVE
IC704 SVITC9310N11 LOGIC CONTROL
ICF01 AN6556F PLAYBACK AMP
Q605,606 2SD1302 HEAD SELECTOR
Q601~603 2SC1845 HEAD SELECTOR
Recording signal (Lch.)
Playback signal (Rch.)
R/P Head
Erase Head
Q604,617 2SA1015 SWITCHING
Q618 2SD471 BIAS
D601 OA90
Q607,608 2SC945 TAPE SELECTOR
Erase current adj.
Bias OSC
Recording bias OSC circuit
D603,604 MA165
D602 MA4039M 3.9V ZENER
Beat prevention
Q711~713,716,717,725,727 UN4212 SWITCHING
D706,707 OA90
Q714,715 2SC945 SWITCHING
D752~755 MA165
Q726 UN4112 SWITCHING
IC706,709 AN6882 LED DRIVE
S704 (TIMER) PLAY OFF REC
IC709
IC708
D740 LN7442YP PAUSE IND.
D741 LN242RP REC IND.
D742 LN342GP(G) PLAY IND.
D739 LN230RPP POWER IND.
D724~738 LN1511 77P PEAK POWER LEVEL LED /TAPE END IND.
Remaining tape indicator adj.
IC706
IC707
IC706 SVIμPD4011BC LOGIC
IC707 SVIμPD4069UBC LOGIC
D709 MA4051M 5.1V ZENER
D708,712,713 MA165
D. TAPE/TIMER SELECTOR SWITCH CIRCUIT
G TAPE END/ALARM CIRCUIT

■ SCHEMATIC DIAGRAM (SA-007D)

(This schematic diagram may be modified at any time the development of new technology.)

* The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement parts, please use the part No. in the replacement parts list.

NOTES:

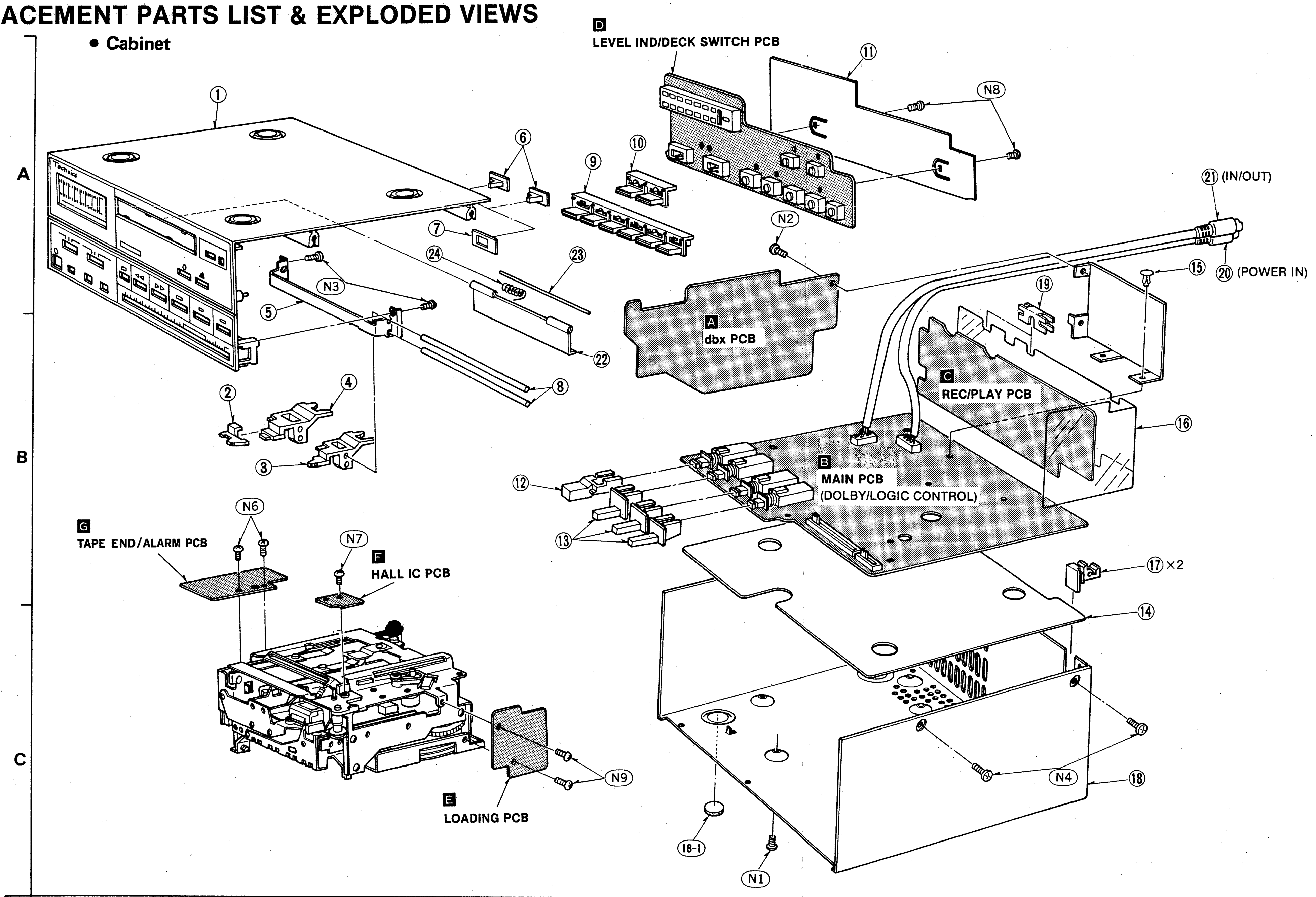
1. **S701** : Cassette hub selector switch in "**regular**" position.
   regular◄–►large
2. **S702** : Noise reduction switch in "**out**" position.
   out◄–►in
3. **S703** : Noise reduction switch in "**Dolby NR**" position.
   Dolby NR◄–►dbx
4. **S704** : Timer stand-by switch in "**rec**" position.
   rec◄–►off◄–►play
5. **S705** : Tape selector switch in "**normal**" position.
   normal◄–►CrO_2◄–►metal
6. **S706** : Power switch in "**on**" position.
7. **S707** : Record-muting switch.
8. **S708** : Eject switch.
9. **S709** : Record switch
10. **S710** : Rewind switch
11. **S711** : Fast-forward switch
12. **S712** : Playback switch
13. **S713** : Stop switch
14. **S714** : Pause switch
15. **S715** : Beat prevention switch in "**B**" position.
   A◄–►B◄–►C
16. **S801** : Cassette detection switch in "**on**" position.
17. **S802** : Loading detection switch in "**off**" position.
18. **S803** : Cassette half detection switch in "**on**" position.
19. **S804** : Incorrect recording switch in "**off**" position.
20. ⊗ mark is printed carbon resistor.
21. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the **TP805** taken as standard.
   Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
   * Figures in ☐ stand for DC voltage are the voltages with tape inserted in stop mode.
   * Figures in [ ] stand for DV voltage in playback signal.
   * Figures in ( ) stand for DV voltage in record signal.
22. Signal lines
   ░░░► Playback signal (L ch.)
   ■■■■► Recording signal (L ch.)
   ⇨ TPS (Tape program selector) signal.
   ——— Positive (+B) voltage lines.
23. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.

NOTE

When checking the voltage at each part, measure the voltage according to the earth point **TP805** shown in the circuit or P.C.B. diagram.

■ REPLACEMENT PARTS LIST & EXPLODED VIEWS

• Cabinet



A	①	⑤		㉔⑦	⑥	⑨	⑩	⑪	⑲	⑮㉑⑳
B	②	③	④		⑫	⑧⑬	㉒			⑭⑰ ⑯
C							⑱-1			⑱

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. The parenthesized numbers in the column of description stand for the quentity per set.
5. Ⓚ -marked parts are used for black only, while ○-marked parts are for silver type only.
6. Part other than Ⓚ-and ○-marked are used for both black and silver type.

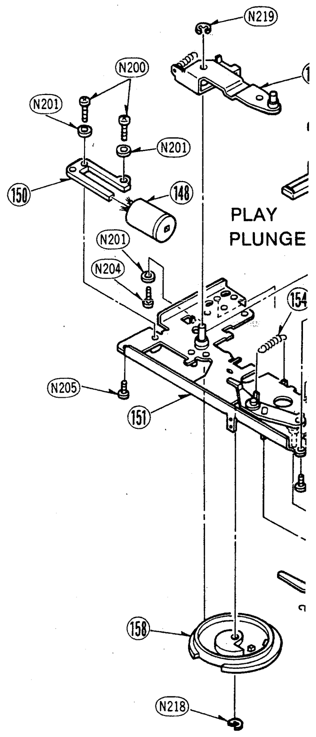
Ref. No.		Part No.	Description	
CABINET and CHASSIS PARTS				
1	○	SGWA007D-SX	Front Panel Ass'y (Silver)	(1)
1	Ⓚ	SGWA007D-KX	Front Panel Ass'y (Black)	(1)
2		SBD85	Knob, Input	(1)
3		SBDA007D-KN	Knob, Balance	(1)
4		SHR9689	Holder, Input Balance, Knob	(1)
5	○	SGE689-1	Ornament (Silver)	(1)
5	Ⓚ	SGE689	Ornament (Black)	(1)
6		SBC625	Button, Timer, Tape	(2)
7	○	SGX7609-1	Spacer, Timer, Tape (Silver)	(1)
7	Ⓚ	SGX7609	Spacer, Timer, Tape (Black)	(1)
8		SUH609	Connection Rod, Input Balance	(2)
9		SBCA007D-KN1	Button, Rec, Eject	(1)
10		SBCA007D-KN2	Button, Play, Pause	(1)
11		SMX817	Shield Plate	(1)
12		SBC619	Button, Power	(1)
13		SBC621	Button, NR	
14		SMX813	Shield Plate Bottom Board	(1)
15		SHR9094	Lock Pin	(1)
16		SMX815	Shield Plate	(1)
17		SHR9707	Spacer, P.C.B.	(2)
18	○	SGPA007D-SZ	Bottom Board (Silver)	(1)
18	Ⓚ	SGPA007D-KX	Bottom Board (Black)	(1)
18-1		SKL245-2	Foot	(4)
19		SHR319	Spacer, Power	(2)
20		SWPA007DN1	Cord, Power Input	(1)
21		SWPA007DN2	Cord, Signal	(1)
22	○	SGE687-3	Cassette Lid (Silver)	(1)
22	Ⓚ	SGE687-2	Cassette Lid (Black)	(1)
23		SUH611	Connection Rod	(1)
24		SUS317	Spring	(1)

Ref. No.		Part No.	Description	
SCREWS				
N1	Ⓢ	XTB3 + 8BFZ	Tapping ⊕3×8	(6)
N2	Ⓢ	XTV3 + 8B	Tapping ⊕3×8	(1)
N3	Ⓢ	XTN26 + 8B	Tapping ⊕26×8	(2)
N4	○	SNE2111-1	Cabinet (Silver)	(10)
N4	Ⓚ	SNE2111	Cabinet (Black)	(10)
N5	Ⓢ	XSN2 + 4	⊕2×4	(2)
N6	Ⓢ	XTN26 + 6B	Tapping ⊕26×6	(2)
N7	Ⓢ	XTN26 + 8B	Tapping ⊕26×8	(1)
N8	Ⓢ	XTN26 + 8B	Tapping ⊕26×8	(4)
N9	Ⓢ	XTN26 + 6B	Tapping ⊕26×8	(2)

Ref. No.		Part No.	Description	
PACKING PARTS				
P1	○	SPG4796-1	Carton Box	(1)
P1	Ⓚ	SPG4796-2	Carton Box	(1)
P2		SPS4293	Pad,Front(For Tuner,Control AMP)	(2)
P3		SPS4295	Pad,Rear(For Tuner,Control AMP)	(2)
P4		SPS4297	Pad,Front(For Power AMP,Deck)	(2)
P5		SPS4299	Pad,Rear(For Power AMP,Deck)	(2)
P6		SPS4301	Pad, Bottom	(1)
P7		XZB29X35C02	Polyethylene Bag	(4)
P8		SPS3799	Pad,Grip	(1)
P9		SQF12131	Instruction Book	(1)
ACCESSORIES				
A1		SJP9006	Pin	(1)
A2		SSA901	Antenna	(1)
A3		SKL269-2	Felt	(4)

Ref. No.	Part No.	Description	
DECK MECHANISM PARTS (Cassette)			
101	SMQT1302	Guide, Cassette	(2)
102	SMQT1303	Pin, Guide	(1)
103	SMQ4288	Spacer, Guide pin	(1)
104	SMQ4124	Clamp, Cord	(3)
105	SMQT1304	Head Base Plate	(1)
106	SMQ4166	Reel Table	(1)
107	SMQT1305	Spacer, Panel	(1)
108	SMQT1306	Head Base Plate Spring	(1)
DECK MECHANISM PARTS (Cassette)			
109	SMQT1307	Spring	(1)
110	SMQT1308	Lever	(1)
111	SJHRP7042CR	Head, Rec/Play	(1)
112	SJHE321PL	Head, Erase	(1)
113	SMQT1309	Spring, Erase Head	(1)
114	SMQT1310	Spring, Erase Head	(1)
115	SMQT1311	Spacer, Erase Head	(1)
116	SMQT1312	Roller	(1)
117	SMQT1313	Spacer, Rec/Play Head	(2)
118	SMQT1314	Spacer, Rec/Play Head	(1)
119	SMQT1315	Spring, Rec/Play Head	(1)
120	SMQT1316	Metal,Flywheel	(1)
121	SMQT1317	Flywheel	(1)
122	SMQT1318	Belt, Main	(1)
123	SMQT1319	Angle,	(1)
124	SMQT1320	Screw,	(1)
125	SMQT1321	Motor, Cassette Drive	(1)
126	SMQT1323	Plate, Cassette Reel	(1)
127	SMQ4204	Arm, Brake(L)	(1)
128	SMQ4206	Arm, Brake(R)	(1)
129	SMQ4202	Spring, Auto Lever	(1)
130	SMQT1324	Reel, Drive	(1)
131	SMQT1325	Reel, Free	(1)
132	SMQ4214	Idler	(1)
133	SMQ4186	Idler	(2)
135	SMQ4180	Lever, FF	(1)
136	SMQ4184	Spring, FF Lever	(1)
137	SMQ4208	Lever, Rew	(1)
138	SMQ4210	Spring, Rew Lever	(1)
139	SMQ4182	Spacer, Return	(2)
140	SMQ4212	Spring, Return	(1)
141	SMQ4220	Spring, Gear	(2)
142	SMQ4216	Gear, Rec/Play	(1)
143	SMQ4222	Gear, Rew	(1)
144	SMQ4218	Arm, Trigger	(1)
145	SMQ4224	Arm, Rew	(1)
146	SMQ4178	Clutch, Rec/Play	(1)
147	SMQT1326	Belt, Rec/FF	(1)
148	SMQT1253	Plunger Coil, Play, Pause, Rew, FF	(4)
149	SMQT1247	Spring, Rew	(1)
150	SMQ4146	Iron Core, Plunger	(4)
151	SMQT1249	P.C.B., Lift	(1)
152	SMQ4242	Arm, Lift	(1)
153	SMQ4230	Arm, Lift Plunger	(1)
154	SMQ4226	Spring, RF Clutch	(1)
155	SMQ4236	Arm, Trigger	(1)
156	SMQ4234	Spring, Lift	(1)
157	SMQ4238	Arm	(1)
158	SMQT1271	Gear,(Main)Lift P.C.B	(1)
159	SMQ4232	Gear,(Main)Lift P.C.B	(1)
160	SMQT1255	Clump	(1)
161	SJT3811	Connector	(2)

• Cassette



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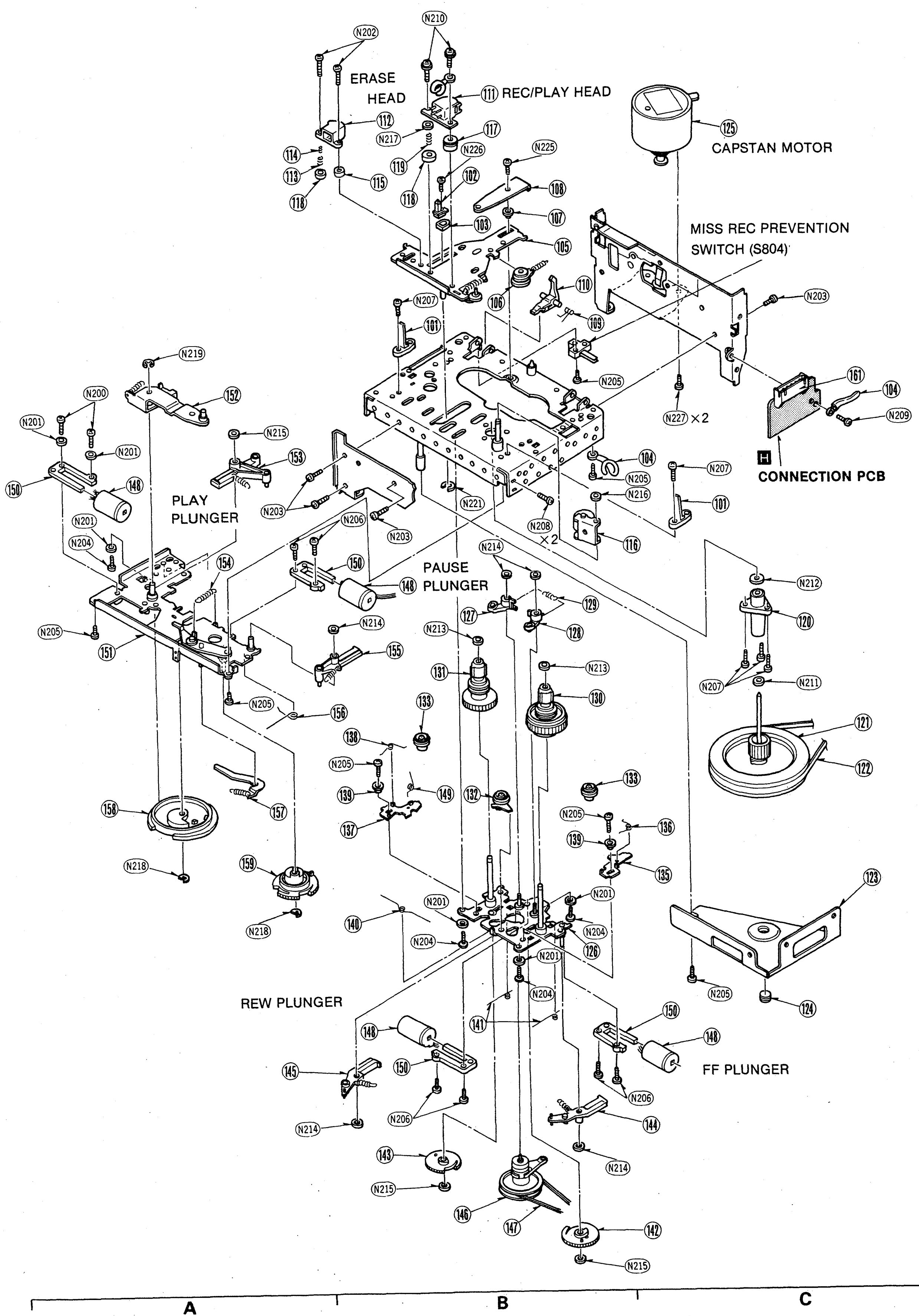
(4)

• Cassette


ERASE HEAD
REC/PLAY HEAD
CAPSTAN MOTOR
MISS REC PREVENTION SWITCH (S804)
H
CONNECTION PCB
PLAY PLUNGER
PAUSE PLUNGER
REW PLUNGER
FF PLUNGER
N227 ×2
N208 ×2
A
B
C

A	B	C
	⑪ 111	
	112	
	117	
	119	
	102	125
114	115	
113	108	
118	118	
	107	
	103	
	105	
	110	
	106	
	101	
	109	
		161
152		104
153		
150		104
148		
		101
		116
154	150	
	148	
	129	
	127	
	128	120
151	155	
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	130	
	133	
	156	121
	138	
	132	122
158	149	133
157	139	
	137	136
	139	
159		
		135
		123
	140	
	126	
		150
	141	124
	148	148
145	150	
		144
	143	
	146	
	147	142

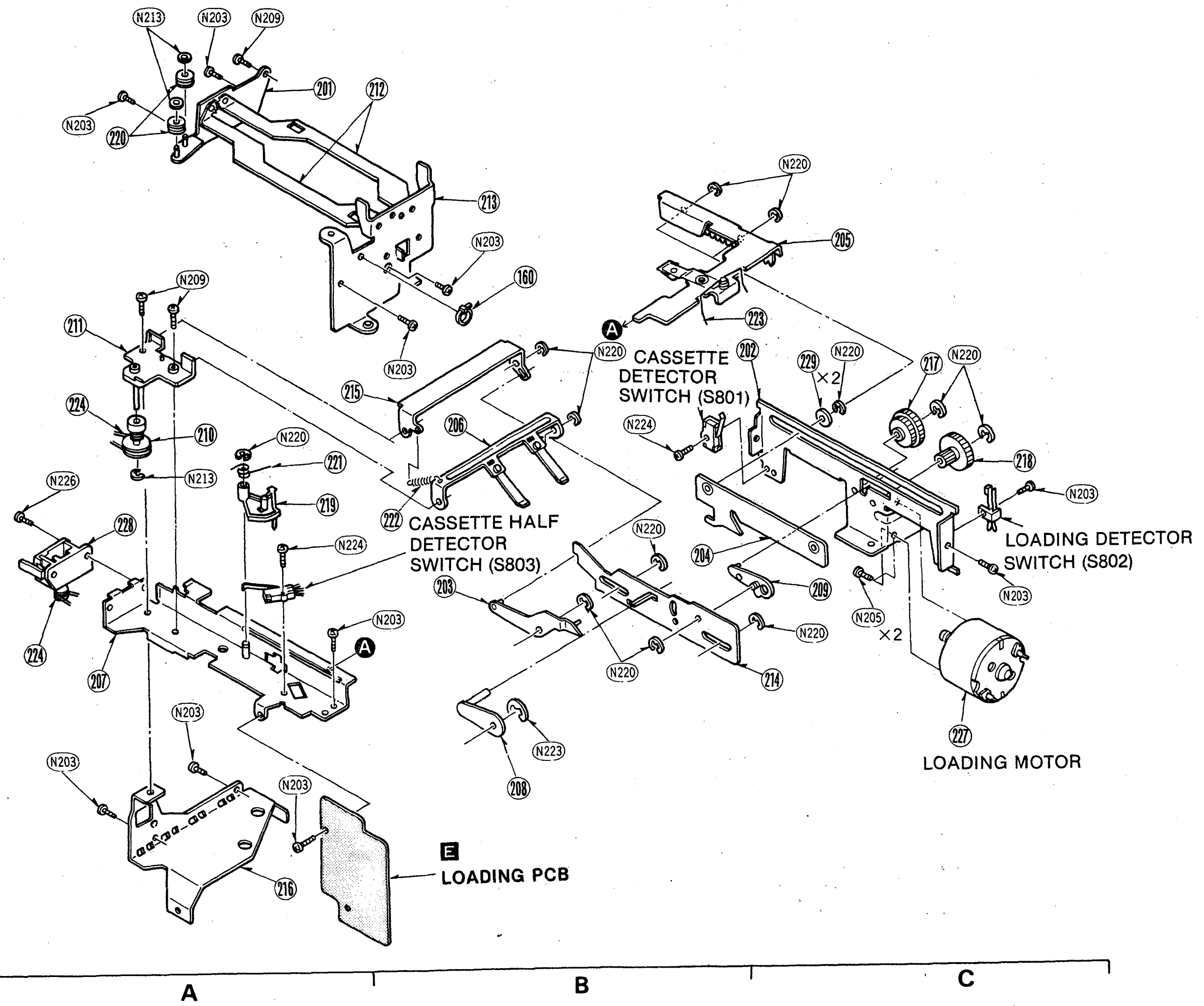
SA-007D SA-007D

Ref. No.	Part No.	Description	
DECK MECHANISM PARTS (Loading)			
201	SMQ1021	Angle, Left	(1)
202	SMQ1023	Angle, Guide	(1)
203	SMQ1025	Arm, Cover Drive	(1)
204	SMQ1027	Slide Plate	(1)
205	SMQ1029	Slider	(1)
206	SMQ1031	Hold Plate, Cassette	(1)
207	SMQ1033	Angle, Cassette Right	(1)
208	SMQ1035	Link pin, Link plate A	(1)
209	SMQ1037	Link pin, Link plate B	(1)
210	SMQ1039	Pulley,	(1)
211	SMQ1041	Connection Rod Plate	(1)
212	SMQ3081	Left	(2)
213	SMQ3085	Angle, Cassette Rear	(1)
214	SMQ3093	Angle, Slide plate A	(1)
215	SMQ3101	Hold Plate	(1)
216	SMQ3105	Angle	(1)
217	SMQ4009	Gear, A	(1)
218	SMQ4011	Gear, B	(1)
219	SMQ4013	Arm	(1)
220	SMQ4015	Pulley	(2)
221	SMQ6051	Spring, Switch Arm	(1)
222	SMQ6053	Spring, Hold	(1)
223	SMQ6055	Spring,	(1)
224	SMQ2027	Belt, Counter	(2)
227	SMQ10002	Motor, Loading	(1)
228	SMQ2029	Counter, Tape	(1)
229	SMQ90002	Washer	(2)

Ref. No.		Part No.	Description	
SCREWS and WASHERS				
N200	Ⓢ	XSN2+8	⊕2×8	(2)
N201	Ⓢ	XWA2B	Washer	(2)
N202	Ⓢ	XSN2+8	⊕2×8	(2)
N203	Ⓢ	XSN26+4	⊕26×4	(15)
N204	Ⓢ	XSN2+4	⊕2×4	(4)
N205	Ⓢ	XSN2+4	⊕2×4	(8)
N206	Ⓢ	XSS2+5	⊕2×5	(6)
N207	Ⓢ	XSN2+6	⊕2×6	(5)
N208	Ⓢ	XSS2+4	⊕2×4	(2)
N209	Ⓢ	XSN26+5	⊕26×5	(4)
N210	Ⓢ	XSN2+10	⊕2×10	(1)
N211		SMQ4254	Washer	(1)
N212		SMQ4256	Washer	(1)
N213		SMQ3914	Washer	(5)
N214		SMQT1269	Washer	(5)
N215		SMQ4258	Washer	(3)
N216		SMQ4260	Washer	(1)
N217		XWG2	Washer	(1)
N218	Ⓢ	XUC15FT	E Ling	(2)
N219	Ⓢ	XUC2FT	E Ling	(1)
N220	Ⓢ	XUC25FT	E Ling	(12)
N221	Ⓢ	XUC3FT	E Ling	(1)
N222	Ⓢ	XUC4FT	E Ling	(1)
N223	Ⓢ	XUC4FT	E Ling	(2)
N224	Ⓢ	XSN17+6	⊕17×6	(2)
N225	Ⓢ	XSN26+5	⊕26×5	(1)
N226	Ⓢ	XSN2+4	⊕2×4	(2)
N229	Ⓢ	XSN26+3	⊕26×3	(2)

• Loading

A	B	C
201	212	
220		
	213	
		205
	160	
211		
		202
	223	229
224	215	217
210	206	
221		218
219		
228	222	
	204	
	203	209
224		
207		214
		227
	208	
216		


A
CASSETTE DETECTOR SWITCH (S801)
×2
CASSETTE HALF DETECTOR SWITCH (S803)
LOADING DETECTOR SWITCH (S802)
N205 ×2
LOADING MOTOR
E
LOADING PCB
A
B
C

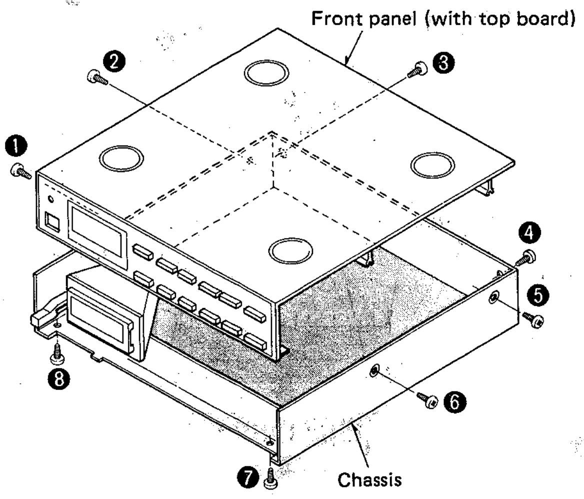
TUNER SECTION (SA-007T)

■ BEFORE REPAIR

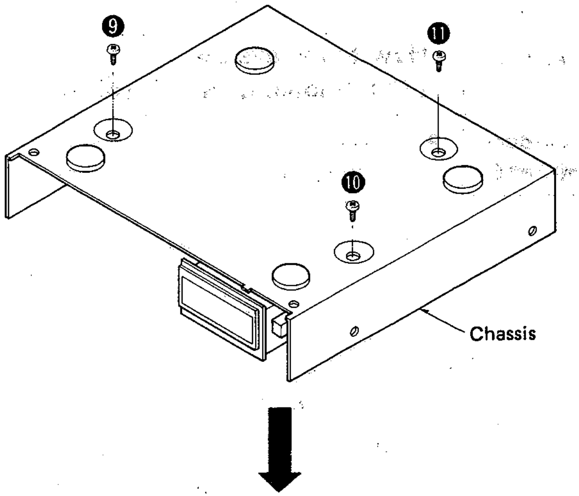
Even when the power switch of tuner (SA-007T) is turned "off", a voltage is still applied to PLL controller (IC301). So, pull out the input/output signal cord from control amplifier (SA-007C) before starting the repair.

■ DISASSEMBLY INSTRUCTIONS

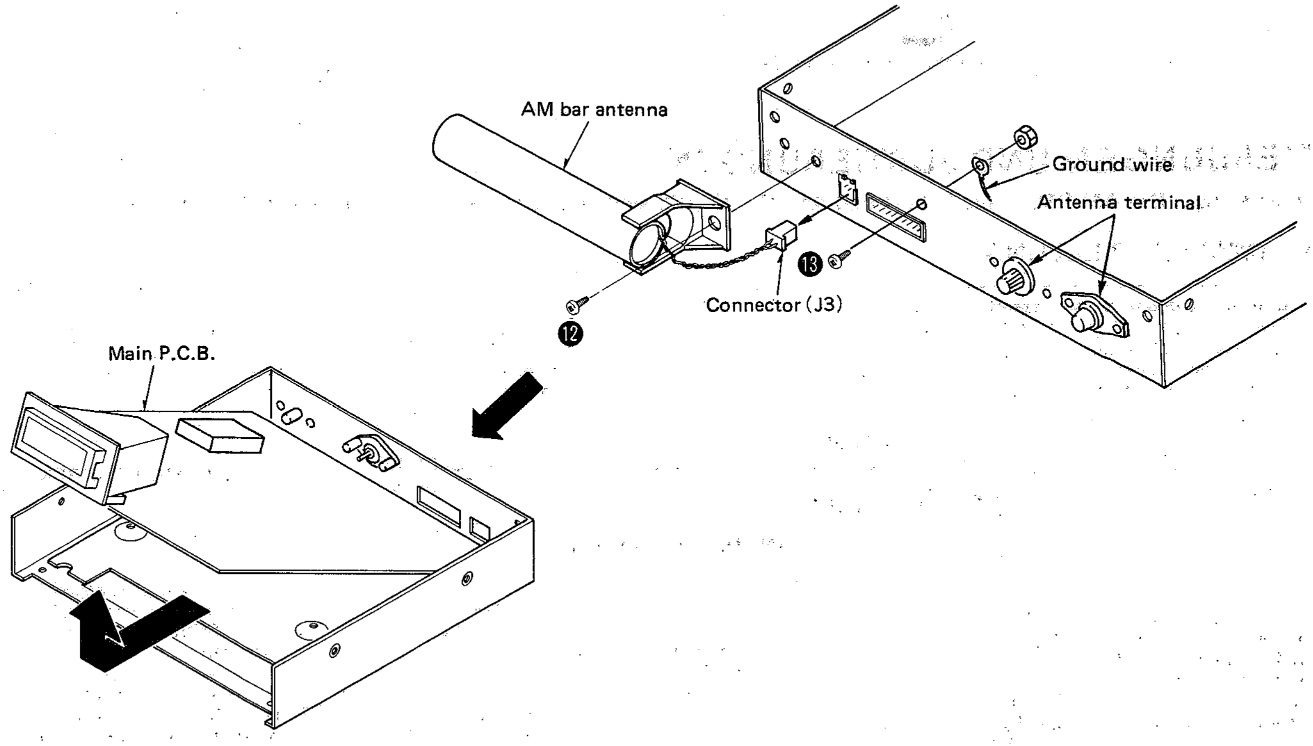
Ref. No.	How to remove the front panel (with top board)
1	
Procedure	
1	- Remove the 8 setscrews.


Front panel (with top board)
❶
❷
❸
❹
❺
❻
❼
❽
Chassis

Ref. No.	How to remove the main P.C.B.
2	
Procedure	
1 ➡ 2	- Remove the 3 setscrews.

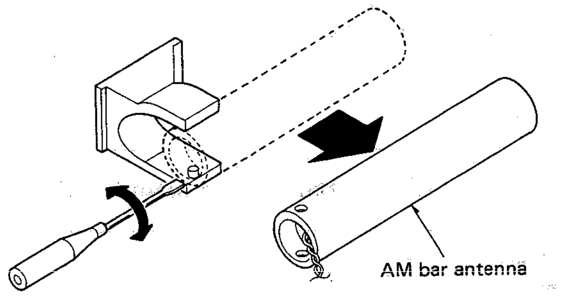

❾
❿
⓫
Chassis

- Remove the 2 setscrews
- Remove the AM bar antenna.


AM bar antenna
Ground wire
Antenna terminal
⓬
⓭
Connector (J3)
Main P.C.B.

Ref. No. 3 — **How to remove the AM bar antenna**

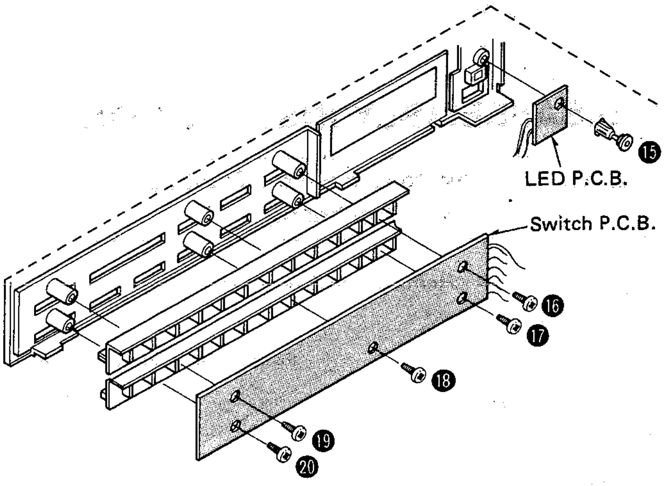
Procedure 3


AM bar antenna

Ref. No. 4 — **How to remove the LED P.C.B. and switch P.C.B.**

Procedure 1➡4

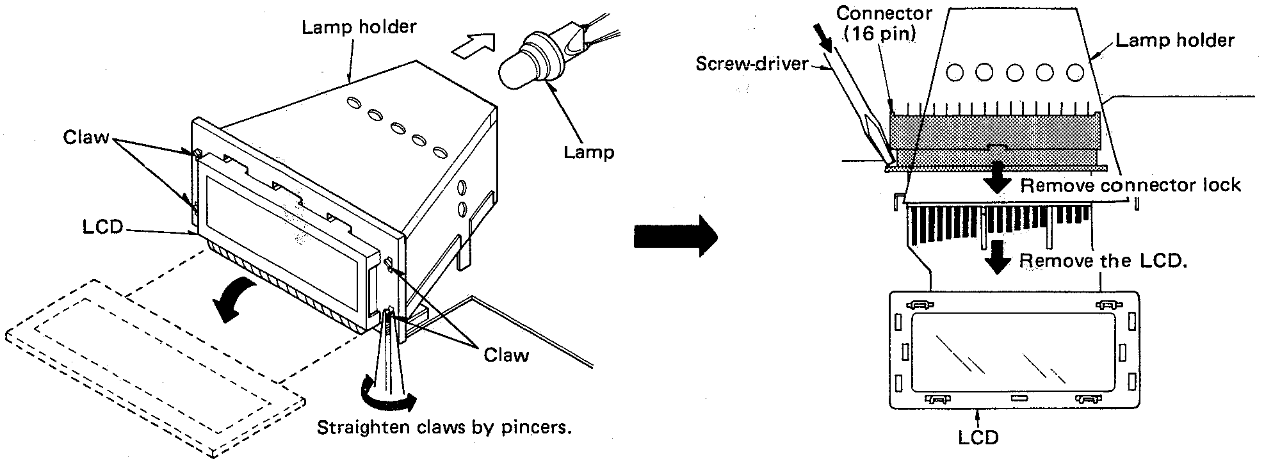
- Remove the 5 setscrews of the switch P.C.B.
- Remove the 1 lock pin of the LED P.C.B.


⑮
LED P.C.B.
Switch P.C.B.
⑯
⑰
⑱
⑲
⑳

Ref. No. 5 — **How to remove the LCD (Liquid Crystal Display)**

Procedure 1➡2➡5

- Straighten the 4 claws that fasten the LCD by using pincers, and remove the LCD from the lamp holder.


Lamp holder
Lamp
Claw
LCD
Claw
Straighten claws by pincers.
Connector (16 pin)
Screw-driver
Lamp holder
Remove connector lock
Remove the LCD.
LCD

■ MESSUNGEN UND JUSTIERUNGEN

Anmerkung: Die AM-OSC-Spule (L107) und AM ZFT (T103) sind bereits justiert und benötigen daher keine Justierung.

AM (MW)-EINSTELLUNG

*** Einstellungen und zu benutzende Geräte**

1. Elektronisches Voltmeter für Wechsel- und Gleichstrom (EVM).
2. AM (MW)-Meßsender (AM-SG).
3. FM/AM-Wahlschalter in die "AM"-Position stellen.
4. Netzspannung auf ihrem Sollwert halten.
5. Der Ausgang des Meßsenders darf nicht höher sein als unbedingt notwendig für eine gute Ablesung.
6. Einen nichtmetallischen Schraubenzieher für die Einstellungen verwenden.

	AM (MW)-MESSENDER		ANZEIGE-FREQUENZ DURCH VOR-EINSTELLUNG	VORBEREITUNG	ABGLEICHS-PUNKTE	ABGLEICHSVERFAHREN
	ANSCHLUSS	FREQUENZ				
	AM (MW)-HF-ABGLEICH					
1	AM-MO über 200 pF-Kondensator an den AM-Antennenanschluß anschließen. Erdung an chassis. (Schwacher Eingang.)	612 kHz (400 Hz Modulat., 30%)	612 kHz	Wechselstrom-Voltmeter order Oszillograph an Emitter von Q111, Q112 anschließen.	L106 (Ant. Spule)	1. Auf max. Ausgang abgleichen. 2. Den Ferritkern von L106 mit einem Schraubendreher justieren.
2		1503 kHz (400 Hz Modulat., 30%)	1503 kHz		CT102 (Ant. Trimmer)	1. Auf max. Ausgang abgleichen. 2. Die Schritte (1) und (2) wiederholen, bis die Frequenz genau mit der Skalenanzeige übereinstimmt.

FM (UKW)-EINSTELLUNG

*** Einstellungen und zu benutzende Geräte**

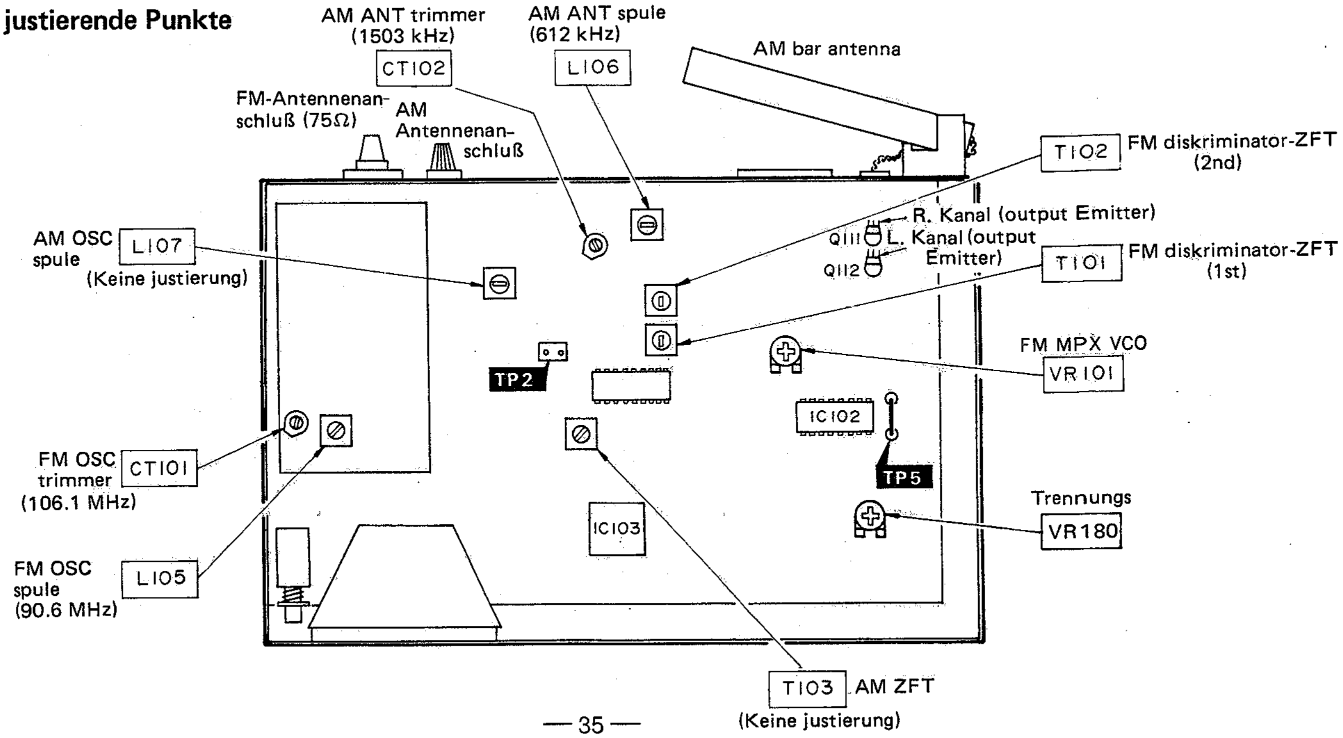
1. UKW-Meßsender (FM-SG)
2. Stereo-Modulator
3. Oszillograph.
4. Elektronische Voltmeter für Wechsel- und Gleichstrom (EVM).
5. Signalfrequenzmesser (meßbar für 19 kHz und 108 MHz).
6. Tiefpaßfilter (fc = 15 kHz ～ 19 kHz).
7. FM/AM-Wahlschalter in die "FM"-Position stellen.
8. Den UKW-Betriebsartenschalter in die "mono"-Position stellen.
9. Die anderen Einstellungen sind gleich wie bei der AM (MW)-Einstellung.

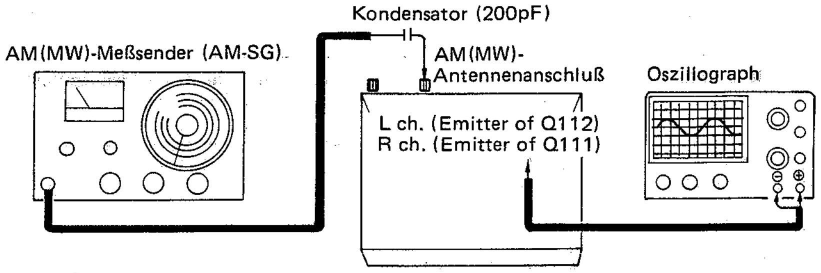
*** Vorbereitung des UKW-Meßoszillators (UKW-MO)**

Die Normal-Eingangsleistung dieses Gerätes beträgt 60 dB (1 mV), 400 Hz, 100% Modulation. (Wegen der Dämpfung bei Verwendung von Koaxialkabeln, muß die MO-Ausgangsleistung 6 dB oder mehr betragen: d.h. wenn die Eingangsleistung 60 dB beträgt, muß der MO-Ausgang 66 dB betragen.

<table>
<tr><th rowspan="2"></th><th colspan="2">FM (UKW)-MESSENDER</th><th rowspan="2">ANZEIGE-FREQUENZ DURCH VOR-EINSTELLUNG</th><th rowspan="2">VORBEREITUNG</th><th rowspan="2">ABGLEICHS-PUNKTE</th><th rowspan="2">ABGLEICHSVERFAHREN</th></tr>
<tr><th>ANSCHLUSS</th><th>FREQUENZ</th></tr>
<tr><td></td><td colspan="6">UKW-ZF-ABGLEICH</td></tr>
<tr><td>3</td><td rowspan="2">UKW-MS an FM Antennende anschließen, wie in Abb. 2 gezeigt. (60 dB an den Antennereingang anlegen.)</td><td rowspan="2">100.1 MHz (400 Hz Modulat., 100%)</td><td rowspan="2">100.1 MHz</td><td>Gleichstrom-Voltmeter an TP2 über eine Drosselspule anschließen, wie in Abb. 2.</td><td>T101 (Diskriminator ZFT)</td><td rowspan="2">1. Den Kern von T101 so justieren, daß die gemessene Spannung im Signalzustand 0 mV im 300 mV Bereich beträgt.
2. Den Ferritkern von T102 mit einem Schraubendreher so justieren, deß die Verzerrung des linken und rechten Kanals minimal ist.</td></tr>
<tr><td>4</td><td>Verzerrungsmesser an Emitter von Q111, Q112 anschließen.</td><td>T102 (Diskriminator-ZFT)</td></tr>
<tr><td></td><td colspan="6">UKW-STEREO-DEKODER-ABGLEICH</td></tr>
<tr><td></td><td colspan="4">UNTER VERWENDUNG EINES ZÄHLERS</td><td colspan="2">ALTERNATIVE MESSMETHODE</td></tr>
<tr><td>5</td><td colspan="4">1. Unmoduliertes Mono-Signal 100.1MHz in das Gerät speisen.
2. UKW-Betriebsart-Schalter auf "auto" stellen.
3. Frequenzzähler über einen Widerstand von 100k Ohm an TP5 anschließen. (Siehe Abb. 3.)
4. VR101 auf 19 kHz ± 30 Hz einstellen.</td><td colspan="2">1. Stereosignal entweder von einem Meßsender, oder einem Stereosender in den Tuner speisen.
2. VR101 so einstellen, daß die Stereolampe aufleuchtet. Schleifer von VR101 sichern, wie in Abb. 4 gezeigt.</td></tr>
<tr><td></td><td colspan="6">TERNNUNGS-ABGLEICH</td></tr>
<tr><td>6</td><td>Meßsender über eine UKW-Kunstantenne an den UKW-Antenneneingang anschließen. (Stereo-Pilotsignal 10% moduliert.)</td><td>100,1 MHz (400 Hz Modulat., 100%) L order R-Betriebsart.)</td><td>100,1 MHz</td><td>Wechselstrom-Voltmeter über Tiefpaßfilter (fc = 15 ～ 19 kHz) an Ausgangsanschlüsse (OUTPUT) des Gerätes schließen.</td><td>VR180 (Trennung)</td><td>1. Den UKW-Betriebsartenschalter in die "auto"-Position stellen.
2. VR180 auf minimale Anzeige des R-Ausgangs bei Stereomodulator in L. (L-Kanalmodulation) Modus, und auf minimale Anzeige des L-Ausgangs in R-Modus abgleichen.</td></tr>
</table>

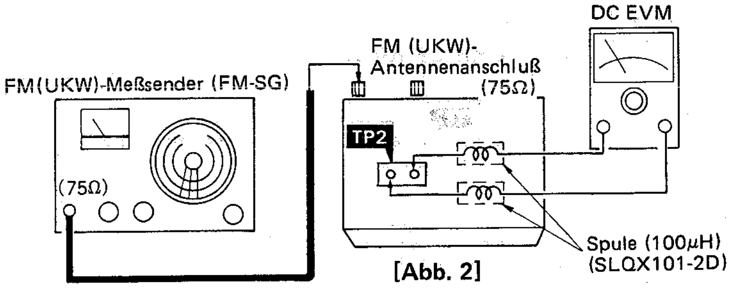
- **Zu justierende Punkte**


AM ANT trimmer (1503 kHz)
CT102
AM ANT spule (612 kHz)
L106
AM bar antenna
FM-Antennenanschluß (75Ω)
AM Antennenanschluß
T102
FM diskriminator-ZFT (2nd)
R. Kanal (output Emitter)
Q111
L. Kanal (output Emitter)
Q112
T101
FM diskriminator-ZFT (1st)
AM OSC spule
L107
(Keine justierung)
FM MPX VCO
VR101
TP2
IC102
TP5
FM OSC trimmer (106.1 MHz)
CT101
Trennungs
VR180
IC103
FM OSC spule (90.6 MHz)
L105
T103
AM ZFT
(Keine justierung)


Kondensator (200pF)
AM(MW)-Meßsender (AM-SG)
AM(MW)-Antennenanschluß
Oszillograph
L ch. (Emitter of Q112)
R ch. (Emitter of Q111)

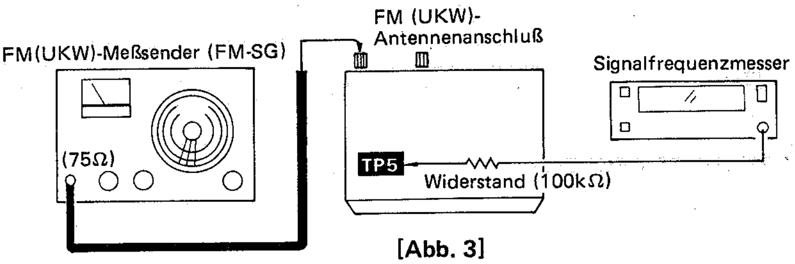
[Abb. 1]

AM (MW)-Justierung


DC EVM
FM (UKW)-Antennenanschluß
(75Ω)
FM(UKW)-Meßsender (FM-SG)
(75Ω)
TP2
Spule (100μH)
(SLQX101-2D)

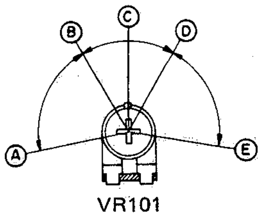
[Abb. 2]

UKW-MPX-VCO-Justierung


FM (UKW)-Antennenanschluß
FM(UKW)-Meßsender (FM-SG)
Signalfrequenzmesser
(75Ω)
TP5
Widerstand (100kΩ)

[Abb. 3]

Justierung der FM (UKW)-MPX-VCO



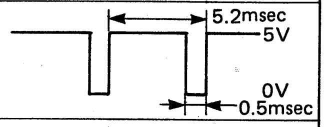
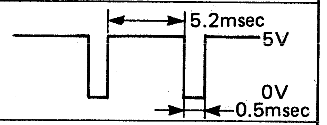
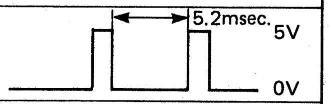
Ⓐ–Ⓑ,Ⓓ–Ⓔ : Stereo AUS position.
Ⓑ–Ⓓ : Stereo-EIN position. (Anzeige leuchtet
Ⓒ : Punkt der Pilot-Schaltung justieren.

[Abb. 4]

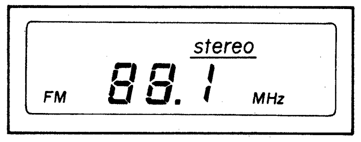
Justierung der FM (UKW)-MPX-VCO

■ FUNCTION OF TERMINAL (PLL CONTROLLER IC103)

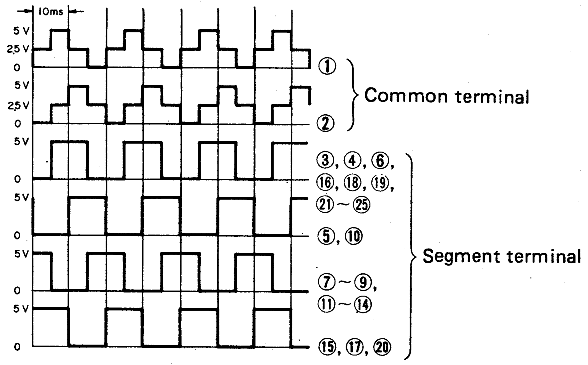
Pin No.	Mark	Description of terminal
1 ≀ 4 34 ≀ 52	LCD4 ≀ LCD1 LCD23 ≀ LCD5	Segment signal output terminal for display.
5	COM2	Common signal output terminal connected to LCD. Output is delivered in 3 values of earth, 1/2VDD and VDD (at 5ms intervals) in a period of 50 Hz. The segment turns ON when the difference in voltage is ± VDD between these terminals and LCD1 ~ LCD23.
6	COM1	
7	VDD	Power supply terminal of device. Voltage of 5V ± 10% is supplied during operation of device. To hold the internal data memory (RAM), the voltage can be decreased to 2.5V. **Note:** Pins 7 and 33 are connected inside the chip. So, it is unnecessary to supply voltage to the pins.
33	VDD	
8	FM	Input is local oscillation output (VCO) in a range of 10 ~ 130 MHz (0.3Vp-p, min.). There are 1/2 fixed frequency division prescaler and 2-step (1/32, 1/33) prescaler internally. Therefore, when deciding the frequency dividing value of programmable divider, it must be decided from the frequency obtained by halving the local oscillation output (VCO).
9	AM	Input is local oscillation output (VCO) in a range of 0.5 ~ 20 MHz (0.1Vp-p, min.). When the mode is shifted to FM, the AM terminal voltage automatically becomes the supply voltage of device.
10	GND	Ground terminal

Pin No.	Mark	Description of terminal
11	E01	When the divided oscillation frequency is higher than the standard frequency, H-level output is delivered from these terminals. When it is lower, L-level (0V) output is delivered. When they coincide, it results in floating.
12	E02	
13	CE	Device selection signal input terminal. The signal level should be high when the device is operated, and low when not operated. With this terminal shifted to low level, LCD (liquid crystal display) turns off and the memory is held.
14	NC	Not used in this unit.
15	X1	Connecting terminal for crystal oscillator. The crystal connected is at 4.5 MHz.
16	X2	
17	A3 (SD)	Terminal to put in stop signal during auto tuning. The voltage is 5V with broadcast received, and 0V without broadcast received.
18	A2	Not used in this unit.
19	A1	FM/AM output terminal. (FM → 5V, AM → 0V)
20	A0	Auto/mono changeover output terminal. (auto → 0V, mono → 5V)
21 ~ 24	K3 ~ K0	Input terminal for key return signal from external key matrix.  5.2msec 5V 0V 0.5msec
25 ~ 26	B3 ~ B0	Input terminal for key return signal from external key metrix.  5.2msec 5V 0V 0.5msec
29	C3	Terminal for FM IF ceramic filter frequency compensation. A pulse is generated when the voltage of terminal ⑬ rises.
30	C2	Output terminal for key return signal to let the stereo indicator light up.  5.2msec. 5V 0V
31	C1	Not used in this unit.
32	C0	Muting signal output terminal. Muting signal is put out during operation of FM/AM selector switch and tuning switch. (4V during muting)

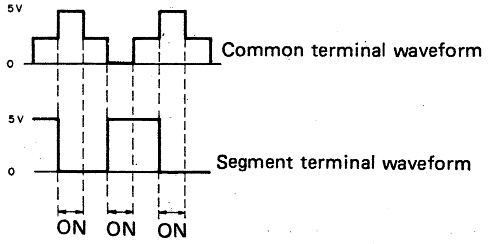
■ TIME CHART OF LCD



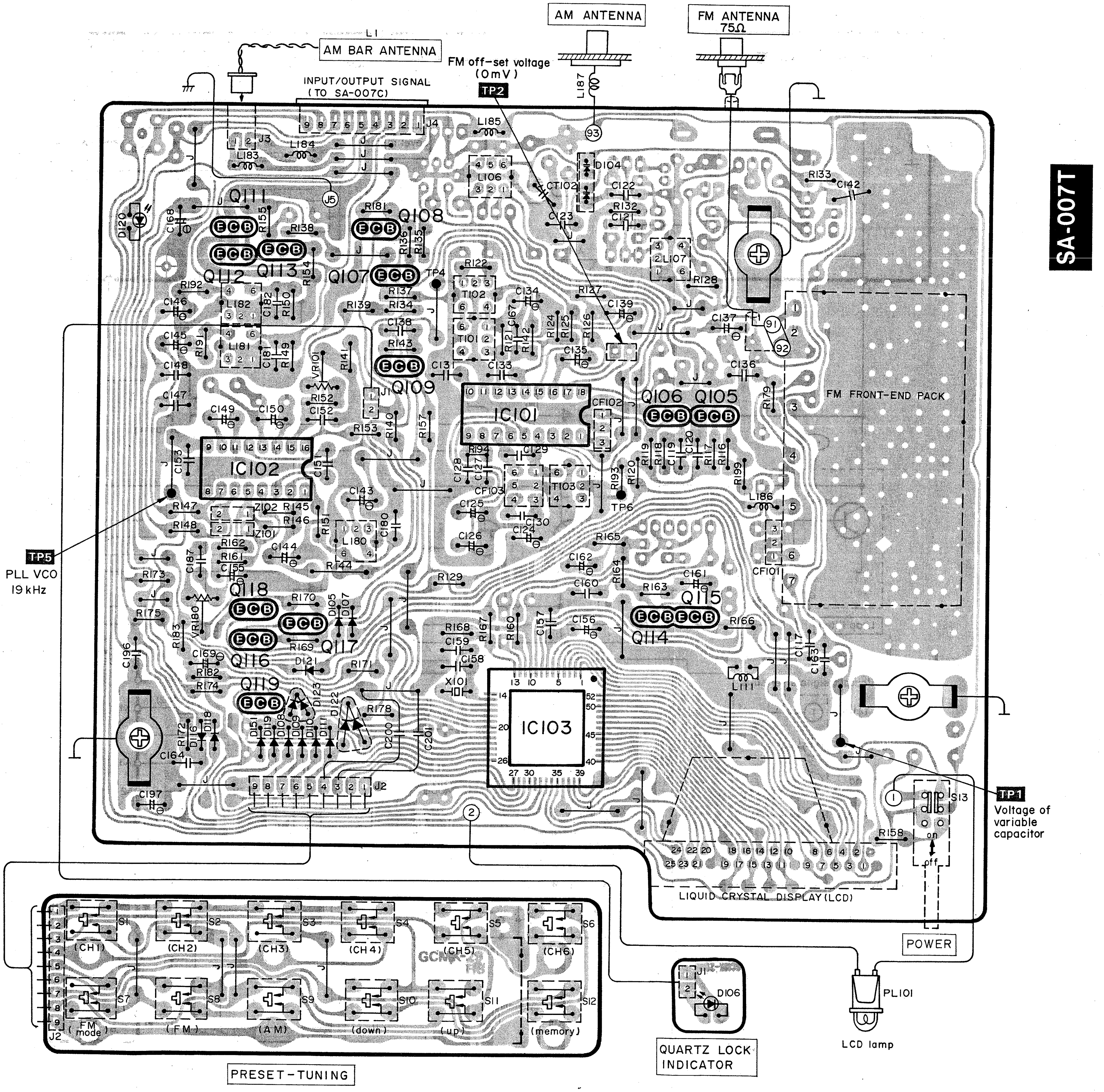
stereo
FM
88.1
MHz



Lighting timing:
It turns on when the difference in voltage between common and segment terminals is 5V (VDD).

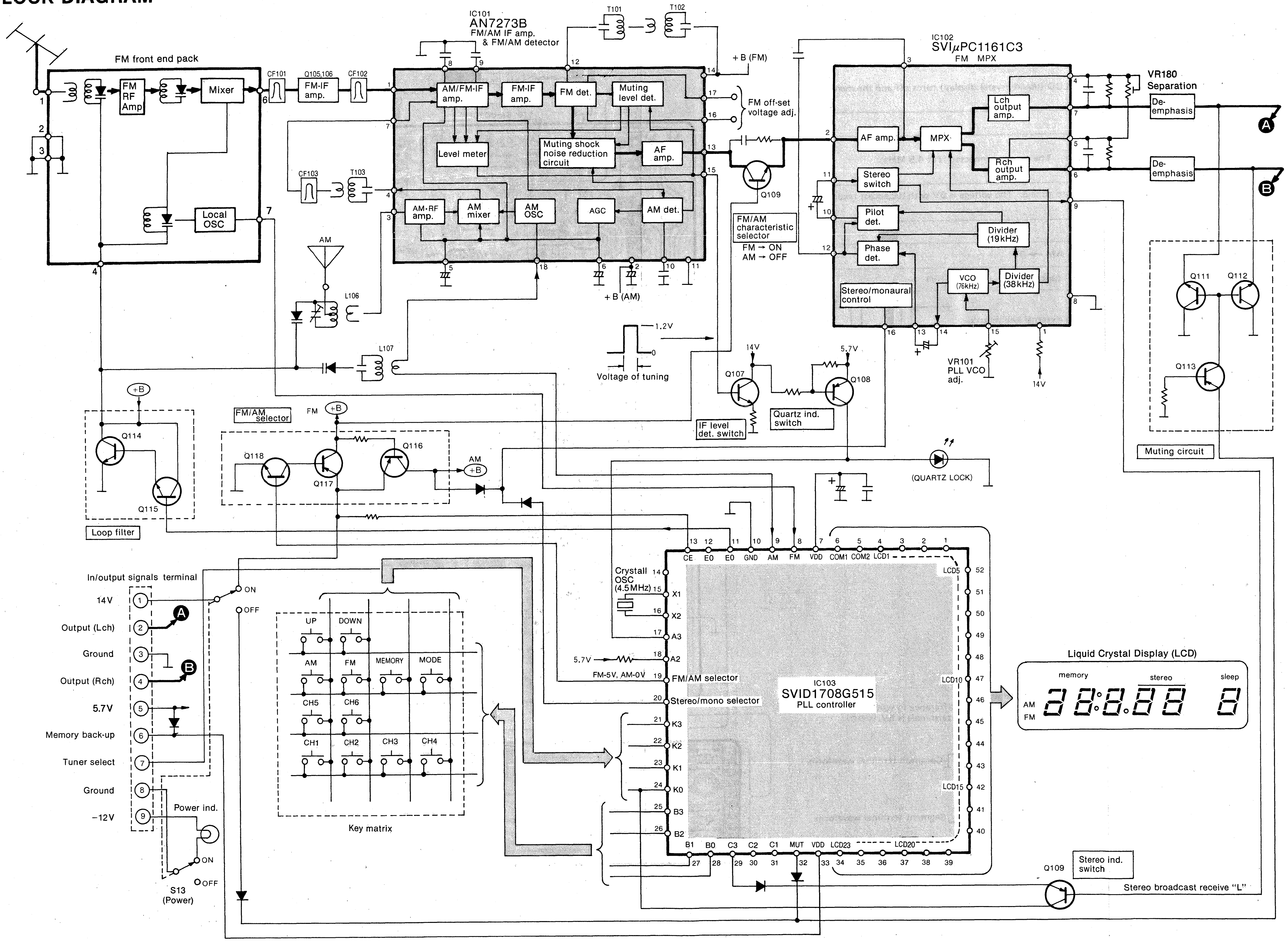


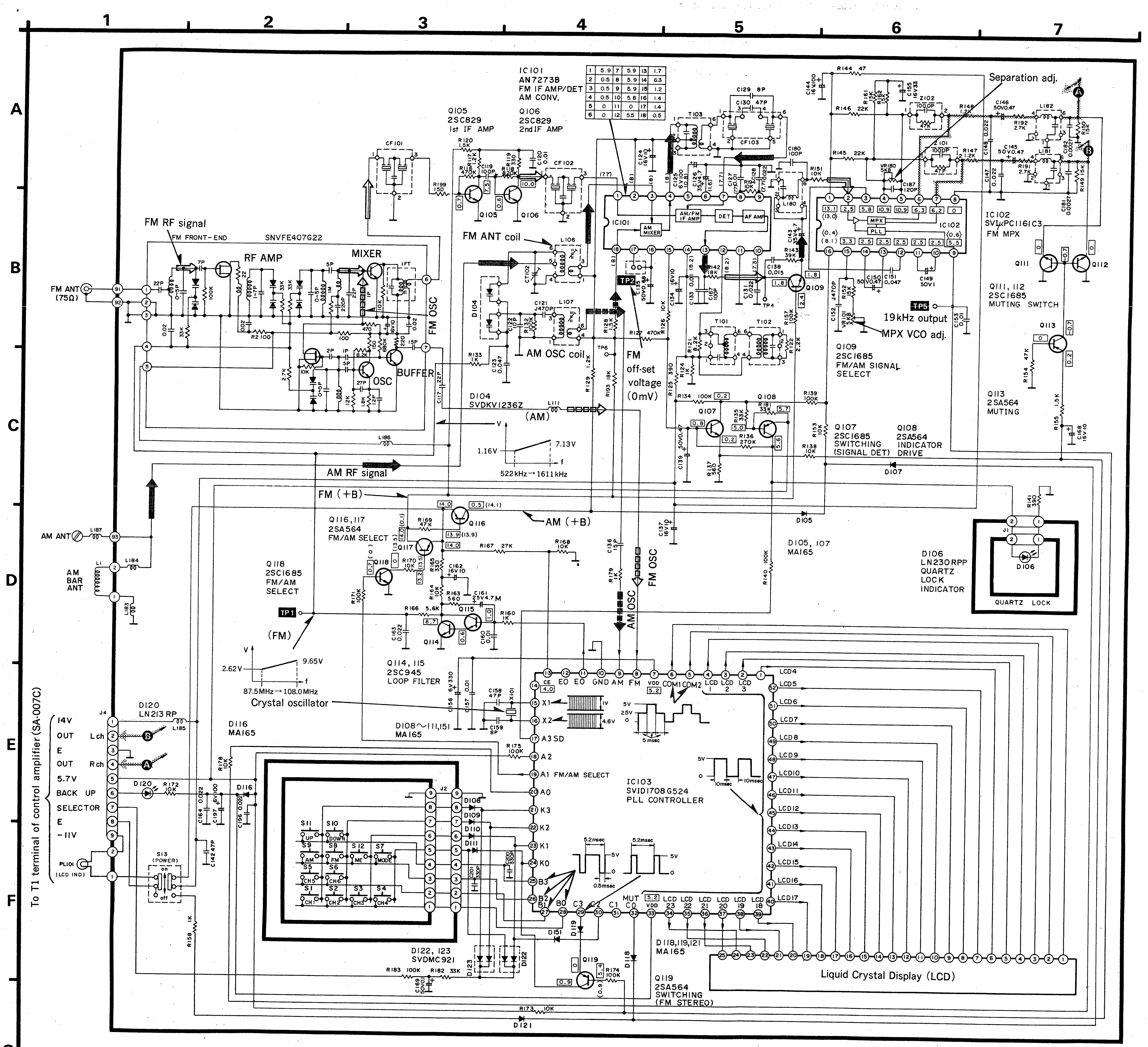
■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM



AM ANTENNA
FM ANTENNA 75Ω
L1
AM BAR ANTENNA
INPUT/OUTPUT SIGNAL (TO SA-007C)
FM off-set voltage (0mV)
TP2
L187
TP4
TP5
PLL VCO 19kHz
TP6
TP1
Voltage of variable capacitor
FM FRONT-END PACK
IC101
IC102
IC103
Q105
Q106
Q107
Q108
Q109
Q111
Q112
Q113
Q114
Q115
Q116
Q117
Q118
Q119
J2
J3
J4
X101
LIQUID CRYSTAL DISPLAY (LCD)
S13
on
off
POWER
PL101
LCD lamp
D106
QUARTZ LOCK INDICATOR
S1 (CH1)
S2 (CH2)
S3 (CH3)
S4 (CH4)
S5 (CH5)
S6 (CH6)
S7 (FM mode)
S8 (FM)
S9 (AM)
S10 (down)
S11 (up)
S12 (memory)
PRESET-TUNING

■ BLOCK DIAGRAM


FM front end pack
FM RF Amp
Mixer
Local OSC
CF101
Q105,106
FM-IF amp.
CF102
IC101
AN7273B
FM/AM IF amp. & FM/AM detector
T101
T102
AM/FM-IF amp.
FM-IF amp.
FM det.
Muting level det.
Level meter
Muting shock noise reduction circuit
AF amp.
AM-RF amp.
AM mixer
AM OSC
AGC
AM det.
+B (FM)
FM off-set voltage adj.
+B (AM)
CF103
T103
AM
L106
L107
Voltage of tuning
1.2V
0
Q109
FM/AM characteristic selector
FM → ON
AM → OFF
IC102
SVIμPC1161C3
FM MPX
AF amp.
MPX
Stereo switch
Pilot det.
Phase det.
Divider (19kHz)
VCO (76kHz)
Divider (38kHz)
Stereo/monaural control
Lch output amp.
Rch output amp.
VR180
Separation
De-emphasis
De-emphasis
A
B
VR101
PLL VCO adj.
14V
5.7V
Q107
Q108
IF level det. switch
Quartz ind. switch
(QUARTZ LOCK)
Q111
Q112
Q113
Muting circuit
+B
Q114
Q115
Loop filter
FM/AM selector
FM
Q118
Q117
Q116
AM +B
Crystall OSC (4.5MHz)
5.7V
FM-5V, AM-0V
CE E0 E0 GND AM FM VDD COM1 COM2 LCD1
X1 X2 A3 A2
FM/AM selector
Stereo/mono selector
K3 K2 K1 K0 B3 B2
B1 B0 C3 C2 C1 MUT VDD LCD23 LCD20
LCD5 LCD10 LCD15
IC103
SVID1708G515
PLL controller
Liquid Crystal Display (LCD)
memory
stereo
sleep
AM
FM
In/output signals terminal
14V
Output (Lch)
Ground
Output (Rch)
5.7V
Memory back-up
Tuner select
Ground
-12V
ON
OFF
UP
DOWN
AM
FM
MEMORY
MODE
CH5
CH6
CH1
CH2
CH3
CH4
Key matrix
Power ind.
S13 (Power)
Q109
Stereo ind. switch
Stereo broadcast receive "L"


1
2
3
4
5
6
7
A
B
C
D
E
F
G
IC101 AN7273B FM IF AMP/DET AM CONV.
Q105 2SC829 1st IF AMP
Q106 2SC829 2nd IF AMP
CF101
CF102
CF103
T103
FM RF signal
FM FRONT-END SNVFE407G22
RF AMP
MIXER
FM OSC
OSC
BUFFER
FM ANT (75Ω)
FM ANT coil
L106
L107
AM OSC coil
D104 SVDKV1236Z
(AM)
7.13V
1.16V
522kHz→1611kHz
AM RF signal
FM (+B)
AM (+B)
AM ANT
AM BAR ANT
TP1
TP2
TP4
TP5
TP6
(FM)
2.62V
9.65V
87.5MHz→108.0MHz
Crystal oscillator
Q116, 117 2SA564 FM/AM SELECT
Q118 2SC1685 FM/AM SELECT
Q114, 115 2SC945 LOOP FILTER
D108~111,151 MA165
FM offset voltage (0mV)
AM OSC
FM OSC
T101
T102
Q109 2SC1685 FM/AM SIGNAL SELECT
Q107 2SC1685 SWITCHING (SIGNAL DET)
Q108 2SA564 INDICATOR DRIVE
IC102 SVI/μPC1161C3 FM MPX
Separation adj.
19kHz output
MPX VCO adj.
Q111, 112 2SC1685 MUTING SWITCH
Q113 2SA564 MUTING
D105, 107 MA165
D106 LN230RPP QUARTZ LOCK INDICATOR
QUARTZ LOCK
J1
IC103 SVID1708G524 PLL CONTROLLER
CE EO EO GND AM FM VDD COM1 COM2 LCD1 LCD2 LCD3
X1
X2
A3 SD
A2
A1 FM/AM SELECT
A0
K3
K2
K1
K0
B3
B2
B1
B0
C3
C2
C1
CO
MUT
VDD
LCD4 – LCD23
5V
25V
5msec
10msec
5.2msec
0.5msec
Liquid Crystal Display (LCD)
To T1 terminal of control amplifier (SA-007C)
14V
OUT Lch
E
OUT Rch
5.7V
BACK UP
SELECTOR
E
-11V
J4
D120 LN213RP
D116 MA165
S13 (POWER) on off
PL101 (LCD IND)
S11 UP
S10 DOWN
S9 AM
S8 FM
S12 ME
S7 MODE
S1 CH1
S2 CH2
S3 CH3
S4 CH4
S5 CH5
S6 CH6
J2
D122, 123 SVDMC921
D118,119,121 MA165
Q119 2SA564 SWITCHING (FM STEREO)
D121
D151

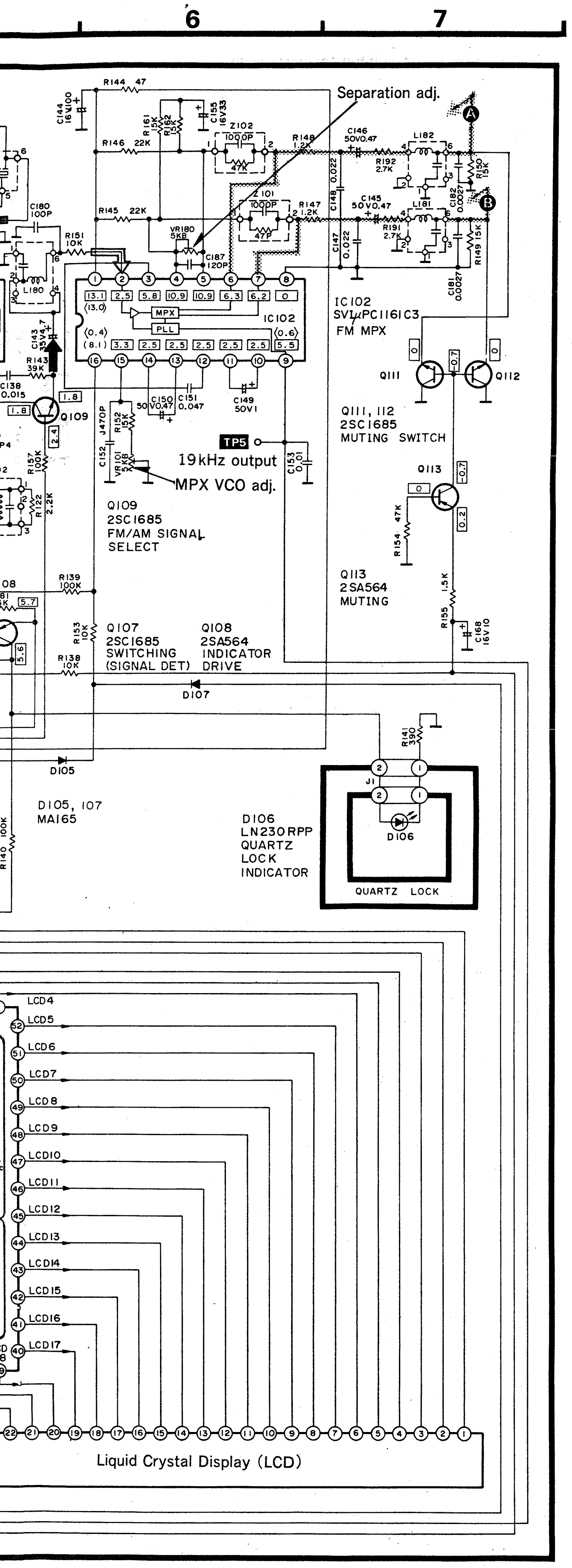
■ SCHEMATIC DIAGRAM (SA-007T)

(This schematic diagram may be modified at any time with the development of new technology.)

- The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement parts, please use the part No. in the replacement parts list.

NOTE:

1. **S1 ~ S6** : Preset-tuning switch.
   [S1 : CH1, S2 : CH2, S3 : CH3
   S4 : CH4, S5 : CH5, S6 : CH6]
2. **S7** : FM mode selector
   auto◄►mono
3. **S8, S9** : Band selectors
   [S8 : FM, S9 : AM]
4. **S10** : Tuning (down) switch.
   [down : tuning to lower frequency]
5. **S11** : Tuning (up) switch
   [Up : tuning to uper frequency]
6. **S12** : Memory switch.
7. **S13** : Power switch in "**on**" position.
8. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the ground point taken as standard.
   Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
   * Figures in ☐ stand for DC voltage in FM signal (monaural) reception mode.
   * Figures in < > stand for DC voltage in AM signal reception mode.
   * Figures in ( ) stand for DC voltage AM signal reception mode.
9. ——— Positive (+B) voltage lines
   ░░► AF signal lines
   ⇨ FM signal
   ➡ AM signal
   □□□□▷ FM OSC
   ■■■■▶ AM OSC


6
7
Separation adj.
R144 47
C144 16V100
R146 22K
R145 22K
Z102 100P
Z101 100P
R148 1.2K
R147 1.2K
C146 50V0.47
C145 50V0.47
L182
L181
R192 2.7K
R191 2.7K
VR180 5KB
C187 120P
C180 100P
R151 10K
L180
IC102
IC102 SVI μPC1161C3 FM MPX
MPX
PLL
Q111
Q112
Q111, 112 2SC1685 MUTING SWITCH
Q113
Q113 2SA564 MUTING
R154 47K
R155 1.5K
C168 16V10
C149 50V1
C150 50V0.47
C151 0.047
C152 J470P
R152 5.6K
VR101 10KB
TP5
19kHz output
MPX VCO adj.
C153 0.01
R143 39K
C138 0.015
Q109
Q109 2SC1685 FM/AM SIGNAL SELECT
R157 100K
R122 2.2K
R139 100K
R153 10K
R138 10K
Q107 2SC1685 SWITCHING (SIGNAL DET)
Q108 2SA564 INDICATOR DRIVE
D107
D105
D105, 107 MA165
D106 LN230RPP QUARTZ LOCK INDICATOR
R141 330
J1
D106
QUARTZ LOCK
R140 100K
LCD4
LCD5
LCD6
LCD7
LCD8
LCD9
LCD10
LCD11
LCD12
LCD13
LCD14
LCD15
LCD16
LCD17
Liquid Crystal Display (LCD)

■ SCHEMATIC DIAGRAM (SA-007T)

(This schematic diagram may be modified at any time with the development of new technology.)

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   auto◄►mono
3. **S8, S9** : Band selectors
   [S8 : FM, S9 : AM]
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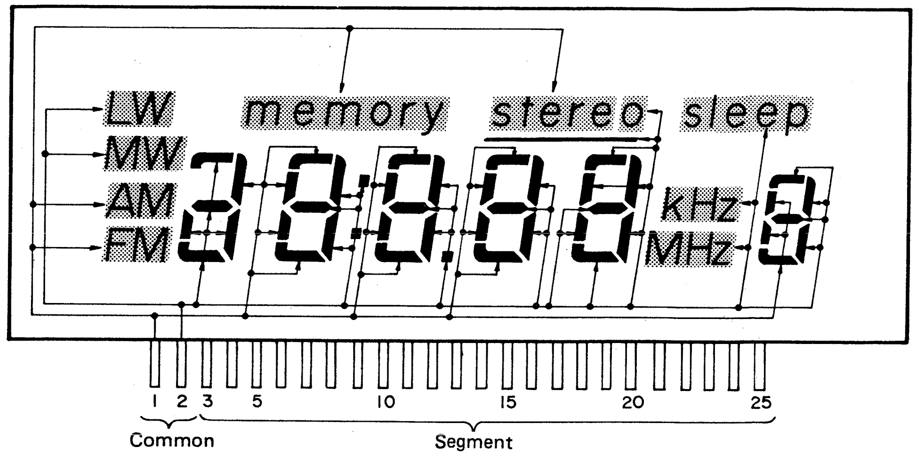
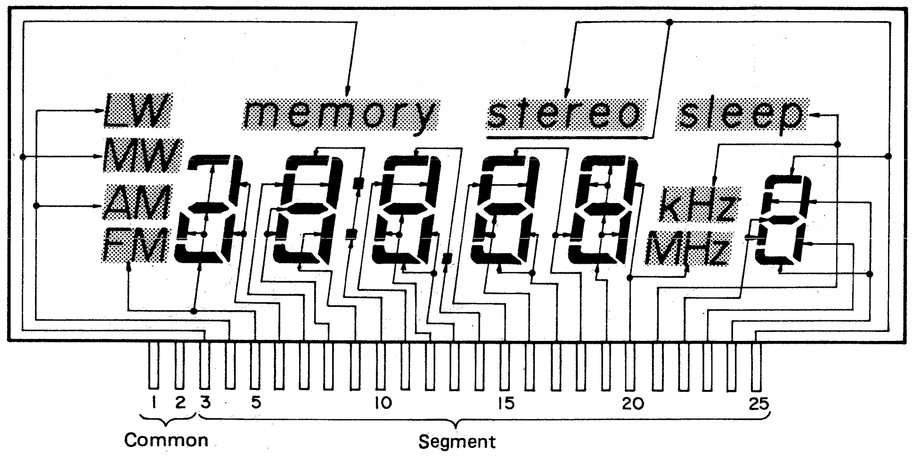
   [down : tuning to lower frequency]
5. **S11** : Tuning (up) switch
   [Up : tuning to uper frequency]
6. **S12** : Memory switch.
7. **S13** : Power switch in "**on**" position.
8. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the ground point taken as standard.
   Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
   * Figures in ☐ stand for DC voltage in FM signal (monaural) reception mode.
   * Figures in < > stand for DC voltage in AM signal reception mode.
   * Figures in ( ) stand for DC voltage AM signal reception mode.
9. ——— Positive (+B) voltage lines
   ░░░▷ AF signal lines
   ▭▭▷ FM signal　　□□□□▷ FM OSC
   ▬▬▶ AM signal　　■■■■▶ AM OSC

■ LIQUID CRYSTAL DISPLAY (LCD)

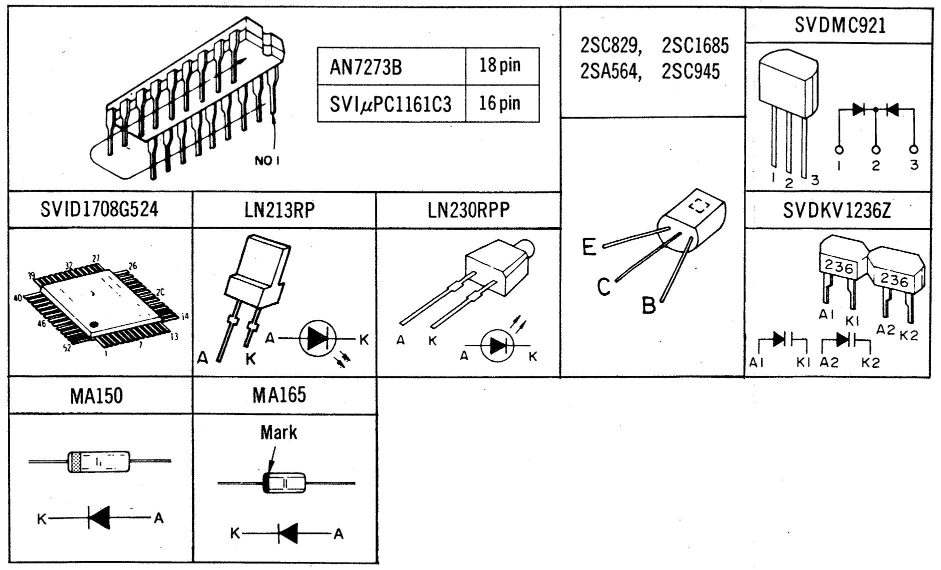
- **Common terminal (No. 1, 2)**


LW
memory
stereo
sleep
MW
AM
FM
kHz
MHz
1 2 3 5 10 15 20 25
Common
Segment

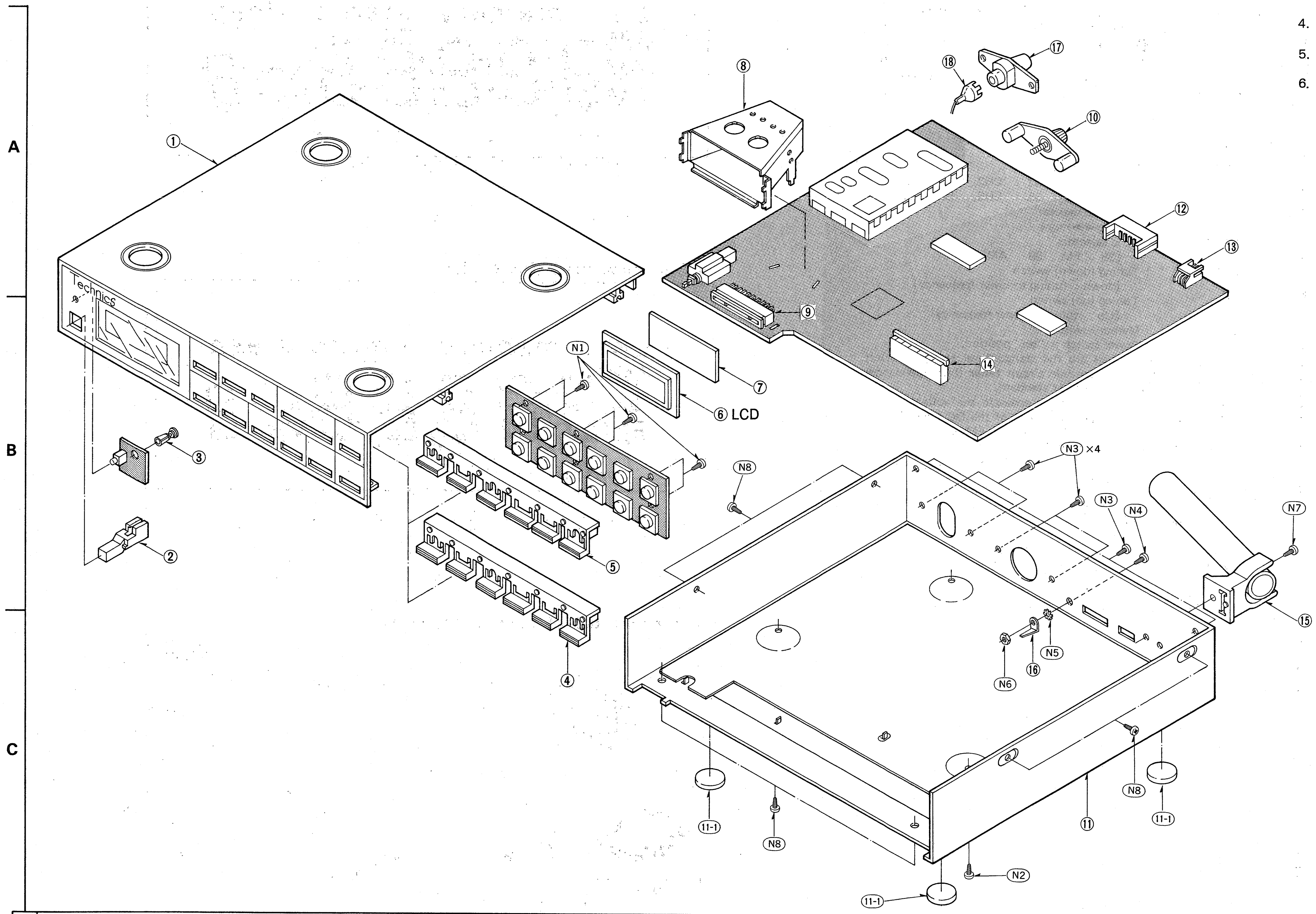
- **Segment terminal (No. 3 ~ 25)**


LW
memory
stereo
sleep
MW
AM
FM
kHz
MHz
1 2 3 5 10 15 20 25
Common
Segment

- **Terminal guide of transistors, diodes and IC's**


NO 1
AN7273B 18pin
SVIμPC1161C3 16pin
2SC829, 2SC1685
2SA564, 2SC945
E
C
B
SVDMC921
1 2 3
1 2 3
SVID1708G524
39 32 27 26
40 2C
46 14
52 1 7 13
LN213RP
A K
A K
LN230RPP
A K
A K
SVDKV1236Z
236
236
A1 K1 A2 K2
A1 K1 A2 K2
MA150
K A
MA165
Mark
K A

■ REPLACEMENT PARTS LIST & EXPLODED VIEW (Tuner Unit Parts)



A	① ⑧ ⑨ ⑱ ⑰ ⑩ ⑫ ⑬
B	② ③ ⑤ ⑥ ⑦ ⑭
C	④ ⑪-1 ⑪-1 ⑯ ⑪ ⑪-1 ⑮

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. The parenthesized numbers in the column of description stand for the quantity per set.
5. Ⓚ -marked parts are used for black only, while ○-marked parts are for silver type only.
6. Part other than Ⓚ -and ○-marked are used for both black and silver type.

Ref. No.		Part No.	Description	
CABINET and CHASSIS PARTS				
1	○	SGWA007T−SZ	Front Panel Ass'y	(1)
1	Ⓚ	SGWA007T−KX	Front Panel Ass'y	(1)
2		SBC619	Button, Power Switch	(1)
3		SHR415	Pin, LED PCB	(1)
4		SBC611	Button, Preset	(1)
5		SBC609	Button, Tuning	(1)
6		EDMKF100	LCD	(1)
7		SDU223	Thin Plate	(1)
8		SMP359−1	Holder, Lamp House	(1)
9		SJS52661MT	Connector, Lamp House	(1)
10		SJF4103	AM Terminal	(1)
11	○	SGPA007T−SG	Rear Panel Ass'y	(1)
11	Ⓚ	SGPA007T−KG	Rear Panel Ass'y	(1)
11-1		SKL245−2	Foot	(4)
12		SJT3917M	Connector, In§Out	(1)
13		SJT3215−B	Connector, Antenna	(1)
14		SJS5903	Connector	(1)
15		SMA243−5	Holder, Antenna	(1)
16		RJT202B	Terminal	(1)
17		SJS9105	Coaxial Plug	(1)
18		RJP5	Plug	(1)
SCREWS, WASHERS and NUTS				
N1		XTN26+8BFZ	Tapping	(5)
N2	○	XTBS3+8FFN1	Tapping, ⊕3×8	(3)
N2	Ⓚ	XTBS3+8FFZ1	Tapping, ⊕3×8	(3)
N3	○Ⓢ	XTB3+8BFN	Tapping, ⊕3×8	(6)
N3	ⓀⓈ	XTB3+8BFZ	Tapping, ⊕3×8	(6)
N4	○Ⓢ	XSB3+8BNS	⊕3×8	(1)
N4	ⓀⓈ	XSN3+8BVS	⊕3×8	(1)
N5	Ⓢ	XWC3B	ϕ3, External Toothed Lock	(1)
N6	Ⓢ	XNG3BS	ϕ3	(1)
N7	Ⓢ	XTB3+8BFZ	Tapping,	(1)
N8	○	SNE2111−1	Cabinet, Screw	(8)
N8	Ⓚ	SNE2111	Cabinet, Screw	(8)

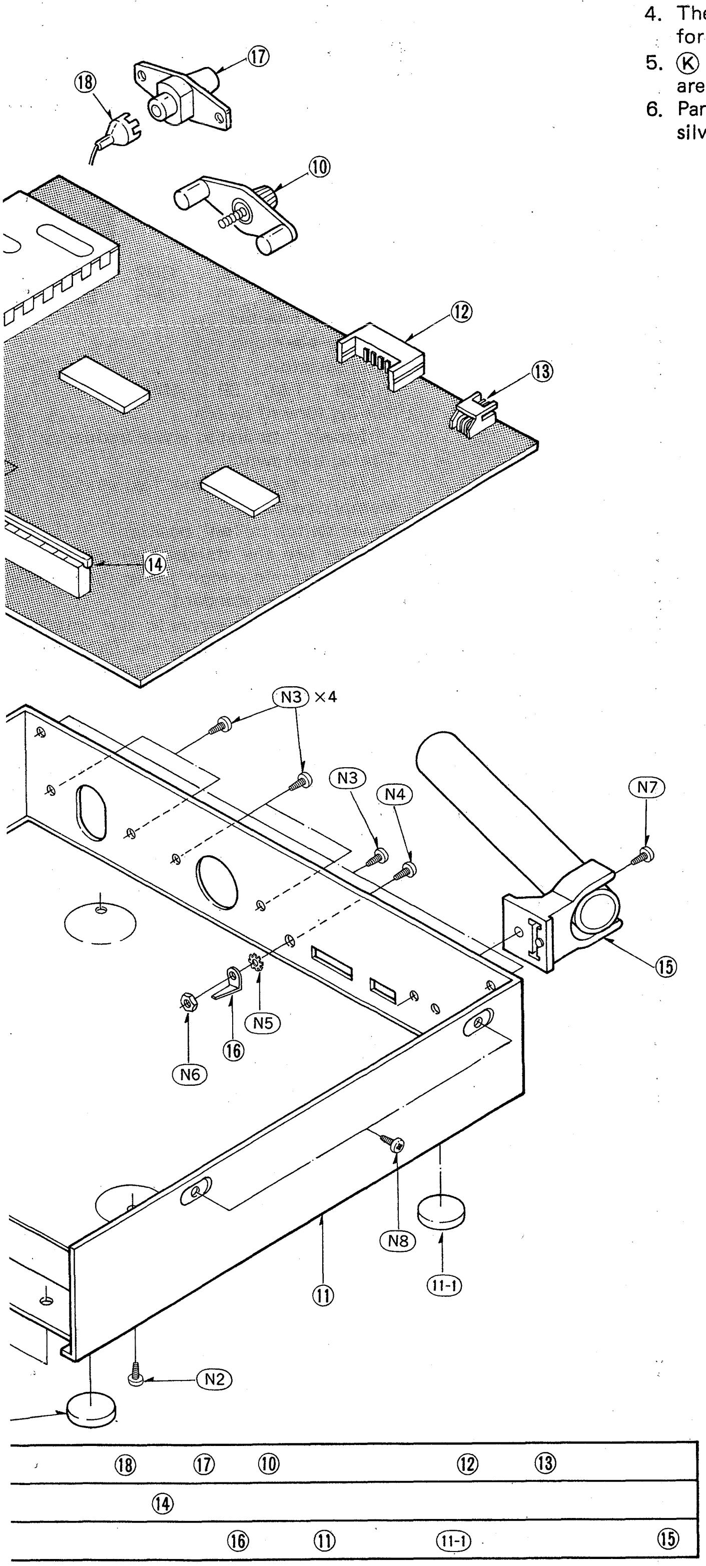
Ref. No.	
INTEGRATED C	
IC101	
IC102	
IC103	
TRANSISTORS	
Q105, 106	Ⓢ
Q107, 109, 111 112, 118	Ⓢ
Q108, 113, 116, 117, 119	Ⓢ
Q114, 115	Ⓢ
DIODES	
D104	
D105, 107∼111, 116, 118, 119, 121, 151	
D101∼103	
D106	
D120	
D122, 123	

● RESISTC

Ref. No.	
R116	EF
R117	EF
R118	EF
R119	EF
R120	EF
R121	EF
R122	EF
R124	ER
R125	ER
R126	EF
R127	ER
R129	ER
R134	ER

● CAPACIT

Ref. No.		
C117	Ⓢ	EC
C119	Ⓢ	EC
C120	Ⓢ	EC
C121		EC
C122	Ⓢ	EC
C123	Ⓢ	EC
C124		EC
C125		EC
C126		EC
C127	Ⓢ	EC
C128	Ⓢ	EC
C129	Ⓢ	EC
C130	Ⓢ	EC



Notes:

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Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
1 ○	SGWA007T−SZ	Front Panel Ass'y (1)
1 Ⓚ	SGWA007T−KX	Front Panel Ass'y (1)
2	SBC619	Button, Power Switch (1)
3	SHR415	Pin, LED PCB (1)
4	SBC611	Button, Preset (1)
5	SBC609	Button, Tuning (1)
6	EDMKF100	LCD (1)
7	SDU223	Thin Plate (1)
8	SMP359−1	Holder, Lamp House (1)
9	SJS52661MT	Connector, Lamp House (1)
10	SJF4103	AM Terminal (1)
11 ○	SGPA007T−SG	Rear Panel Ass'y (1)
11 Ⓚ	SGPA007T−KG	Rear Panel Ass'y (1)
11-1	SKL245−2	Foot (4)
12	SJT3917M	Connector, In§Out (1)
13	SJT3215−B	Connector, Antenna (1)
14	SJS5903	Connector (1)
15	SMA243−5	Holder, Antenna (1)
16	RJT202B	Terminal (1)
17	SJS9105	Coaxial Plug (1)
18	RJP5	Plug (1)
SCREWS, WASHERS and NUTS		
N1	XTN26+8BFZ	Tapping (5)
N2 ○	XTBS3+8FFN1	Tapping, ⊕3×8 (3)
N2 Ⓚ	XTBS3+8FFZ1	Tapping, ⊕3×8 (3)
N3 ○Ⓢ	XTB3+8BFN	Tapping, ⊕3×8 (6)
N3 ⓀⓈ	XTB3+8BFZ	Tapping, ⊕3×8 (6)
N4 ○Ⓢ	XSB3+8BNS	⊕3×8 (1)
N4 ⓀⓈ	XSN3+8BVS	⊕3×8 (1)
N5 Ⓢ	XWC3B	φ3, External Toothed Lock (1)
N6 Ⓢ	XNG3BS	φ3 (1)
N7 Ⓢ	XTB3+8BFZ	Tapping, (1)
N8 ○	SNE2111−1	Cabinet, Screw (8)
N8 Ⓚ	SNE2111	Cabinet, Screw (8)

Ref. No.	Part No.	Description
INTEGRATED CIRCUIT		
IC101	AN7273B	FM/AM IF Amp. FM/AM Detector
IC102	SVIUPC1161C3	FM MPX
IC103	SVID1708G524	Micro-Computer
TRANSISTORS		
Q105, 106 Ⓢ	2SC829−C1	FM IF Amp
Q107, 109, 111 112, 118 Ⓢ	2SC1685−Q	Signal Detector, Muting
Q108, 113, 116, 117, 119 Ⓢ	2SA722−S	Muting, FM/AM Selector
Q114, 115 Ⓢ	2SC945−Q	Loop Filter
DIODES		
D104	SVDKV1236Z	AM Variable Capacitor
D105, 107∼111, 116, 118, 119, 121, 151	MA165	Switching, Key Matrix
D101∼103	MA320G1−N	FM Variable Capacitor
D106	LN230RPP	LED, (Quartz Lock)
D120	LN213RP	Bias
D122, 123	SVDMC921	Switching

Ref. No.	Part No.	Description
TRANSFORMERS		
T101	SLI4B511−Z	FM IFT
T102	SLI4B513−Z	FM IFT
T103	SLI2B101−M	AM IFT
COILS		
L1	SLF6C3−30	AM Antenna
L106	SLA2B1−P	AM Antenna
L107	SL02B7−P	AM OSC
L111	RLQY25S5−O	Choke
L180	SLM1B1−P	Coil
L181, 182	SLM5B2−P	Coil
L183∼186	ELEPK1R2MA	Choke
L187	SLQZ12G1−D	Choke
CERAMIC FILTERS		
CF 101	SVFE107MZ2−A	FM, 10.7 MHz (Red)
CF102	SVFE107MM−A	FM, 10.7 MHz (Red)
CF103	SVFSFZ450F7L	AM 450 kHz
CRYSTAL		
X101	SVQ49U452−T	4.5 MHz

Ref. No.	Part No.	Description
VARIABLE RESISTORS		
VR101	EVNE4AA00B53	MPX VCO Adj. 5 kΩ (B)
VR180	EVNE4AA00B55	500 kΩ (B)
VARIABLE CAPACITORS		
CT102	ECRHA010A11	AM OSC
FM FRONT END		
	SNVFE407G22	Front end PCB Ass'y
COMPONENT COMBINATIONS		
Z101, 102	EXRP102K473T	0.001 μF, 47 kΩ
LAMP		
PL101	XAMR83S100	12V, 0.15A
SWITCHIES		
S1∼12	SSG13	Key-board
S13 ⚠	SSH1129	Power

● RESISTORS

Ref. No.	Part No.	Value
R116	ERDS2TJ474	470K
R117	ERDS2TJ122	1.2K
R118	ERDS2TJ824	820K
R119	ERDS2TJ331	330
R120	ERDS2TJ152	1.5K
R121	ERDS2TJ822	8.2K
R122	ERDS2TJ222	2.2K
R124	ERDS2TJ102	1K
R125	ERDS2TJ391	390
R126	ERDS2TJ103	10K
R127	ERDS2TJ474	470K
R129	ERDS2TJ122	1.2K
R134	ERDS2TJ104	100K

Ref. No.	Part No.	Value
R136	ERDS2TJ274	270K
R137	ERDS2TJ561	560
R138	ERDS2TJ103	10K
R139, 140	ERDS2TJ104	100K
R141	ERDS2TJ391	390
R142	ERDS2TJ183	18K
R143	ERDS2TJ393	39K
R144	ERD2FCG470	47
R145, 146	ERDS2TJ223	22K
R147, 148	ERDS2TJ122	1.2K
R149, 150	ERDS2TJ153	15K
R151	ERDS2TJ103	10K
R152	ERDS2TJ153	15K

Ref. No.	Part No.	Value
R153	ERDS2TJ103	10K
R154	ERDS2TJ473	47K
R155	ERDS2TJ152	1.5K
R157	ERDS2TJ104	100K
R158	ERDS2TJ102	1K
R160	ERDS2TJ102	1K
R161, 162	ERDS2TJ153	15K
R163	ERDS2TJ561	560
R164	ERDS2TJ103	10K
R165	ERDS2TJ331	330
R166	ERDS2TJ562	5.6K
R167	ERDS2TJ273	27K
R168	ERDS2TJ103	10K

Ref. No.	Part No.	Value
R169	ERDS2TJ473	47K
R170	ERDS2TJ103	10K
R171	ERDS2TJ104	100K
R172, 173	ERDS2TJ103	10K
R174, 175	ERDS2TJ104	100K
R178	ERDS2TJ103	10K
R179	ERDS2TJ102	1K
R181, 182	ERDS2TJ333	33K
R183	ERDS2TJ104	100K
R191, 192	ERDS2TJ272	2.7K
R193	ERDS2TJ183	18K
R194	ERDS2TJ103	10K
R199	ERDS2TJ151	150

● CAPACITORS

Ref. No.	Part No.	Value
C117 Ⓢ	ECCD1H220KC	22P
C119 Ⓢ	ECCD1H101K	100P
C120 Ⓢ	ECKD1H103ZF	0.01
C121	ECQP1471JZ	470P
C122 Ⓢ	ECCD1H100KC	10P
C123 Ⓢ	ECQM1H473JZ	0.047
C124	ECEA1CU100	10
C125	ECEA0JU101	100
C126	ECEA1VU4R7	4.7
C127 Ⓢ	ECKD1H103ZF	0.01
C128 Ⓢ	ECKD1H223ZF	0.022
C129 Ⓢ	ECCD1H080CC	8P
C130 Ⓢ	ECCD1H470K	47P

Ref. No.	Part No.	Value
C131 Ⓢ	ECKD1H223ZF	0.022
C133 Ⓢ	ECKD1H103ZF	0.01
C134 Ⓢ	ECEA1CU100	10
C135 Ⓢ	ECEA50ZR68	0.68
C136 Ⓢ	ECCD1H101K	100
C137	ECEA1CU100	10
C138 Ⓢ	ECQM1H153JZ	0.015
C139	ECEA1HUR47	0.47
C142	ECCD1H470K	47P
C143	ECEA1VU4R7	4.7
C144	ECEA1CU101	100
C145, 146	ECEA1HUR47	0.47
C147, 148 Ⓢ	ECQM1H223JZ	0.022

Ref. No.	Part No.	Value
C149	ECEA1HU010	1
C150	ECEA1HUR47	0.47
C151 Ⓢ	ECQM1H473JZ	0.047
C152	ECQP1471JZ	470P
C153 Ⓢ	ECKD1H103ZF	0.01
C155	ECEA1CU330	33
C156	ECEA0JU331	330
C157 Ⓢ	ECKD1H103ZF	0.01
C158 Ⓢ	ECCD1H470K	47P
C159 Ⓢ	ECCD1H080CC	8P
C160 Ⓢ	ECKD1H103ZF	0.01
C161 Ⓢ	ECEA25M4R7	4.7
C162	ECEA1CU100	10

Ref. No.	Part No.	Value
C163, 164 Ⓢ	ECKD1H223ZF	0.022
C167 Ⓢ	ECCD1H101K	100P
C168	ECEA1CU100	10
C169 Ⓢ	ECEA50ZR1	0.1
C180	ECCD1H101K	100P
C181, 182 Ⓢ	ECQM1H272JZ	0.0027
C187	ECCD1H121K	120P
C196 Ⓢ	ECKD1H223ZF	0.022
C197	ECEA0JU101	100
C200, 201 Ⓢ	ECKD1H331KB	330P

CONTROL AMPLIFIER SECTION (SA-007C)

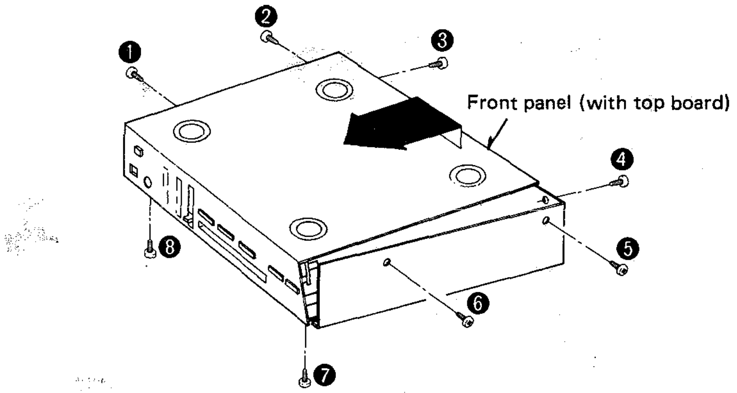
DISASSEMBLY INSTRUCTIONS

Ref. No.
1

How to remove the front panel (with top board)

Procedure
1

- Remove the 8 setscrews.

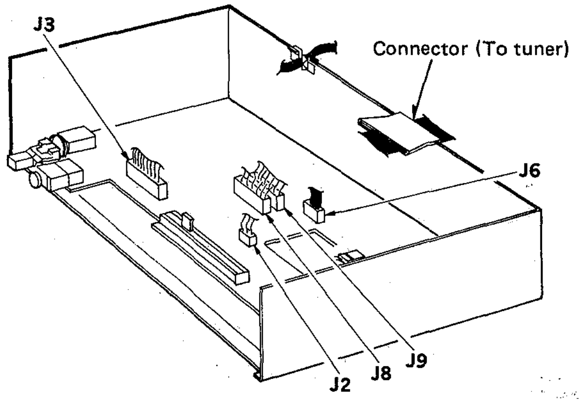

❶
❷
❸
❹
❺
❻
❼
❽
Front panel (with top board)

Ref. No.
2

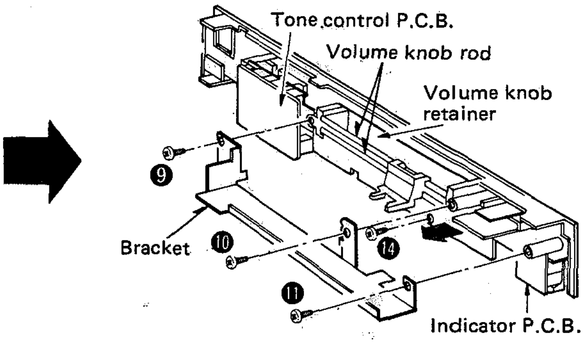
How to remove the indicator P.C.B.

Procedure
1 ➡ 2

- Remove the 5 connectors.
  (J2, J3, J6, J8, J9)


J3
Connector (To tuner)
J6
J2
J8
J9

- Remove the 4 setscrews and remove the bracket.
- Remove the indicator P.C.B. in the direction of the arrow.

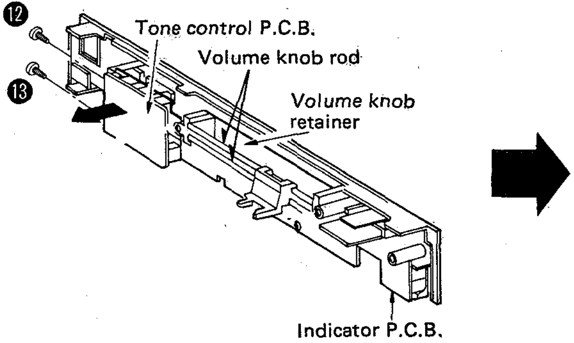

Tone control P.C.B.
Volume knob rod
Volume knob retainer
❾
Bracket
❿
⓮
⓫
Indicator P.C.B.

Ref. No.
3

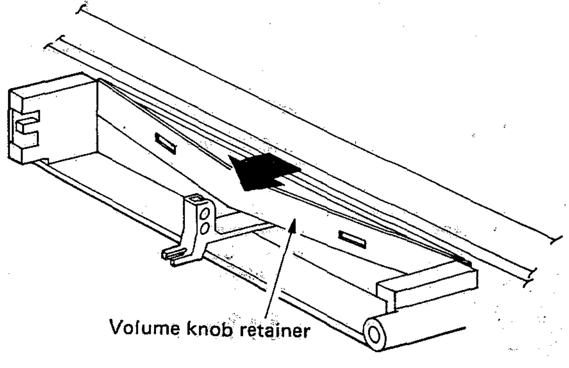
How to remove the slide volume

Procedure
1➡2➡3

- Remove the 2 setscrews.
- Remove the tone control P.C.B. in the direction of the arrow.

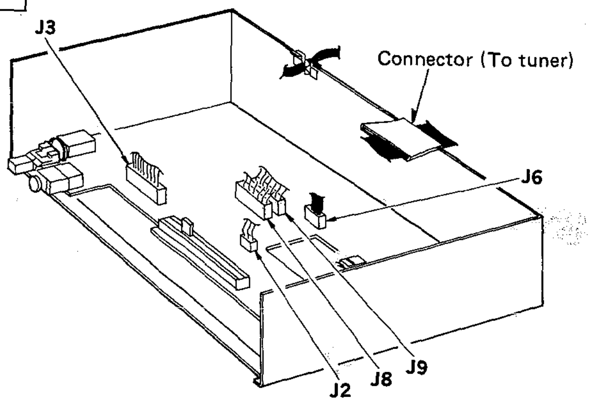

⓬
⓭
Tone control P.C.B.
Volume knob rod
Volume knob retainer
Indicator P.C.B.

- Remove the volume knob retainer while pushing it in the direction of the arrow.
- Remove the volume knob along with the volume knob rod.

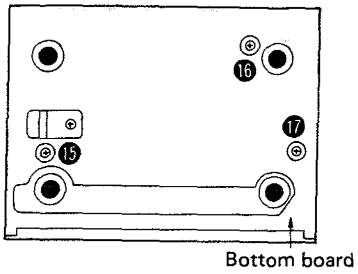

Volume knob retainer

Ref. No. 4	**How to remove the main P.C.B.**
Procedure 1 ➡ 4	

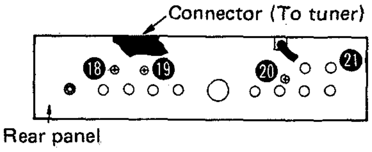
- Remove the 5 connectors. (J2, J3, J6, J8, J9)

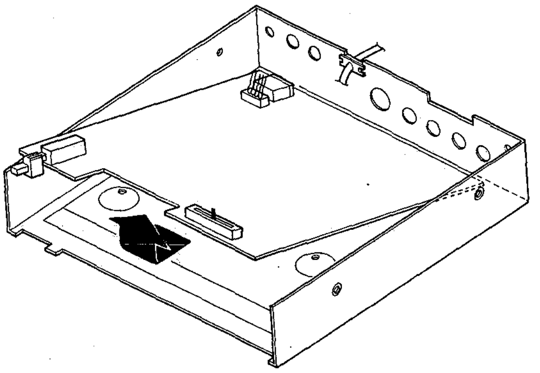

J3
Connector (To tuner)
J6
J2
J8
J9

- Remove the 3 setscrews.


⑯
⑰
⑮
Bottom board

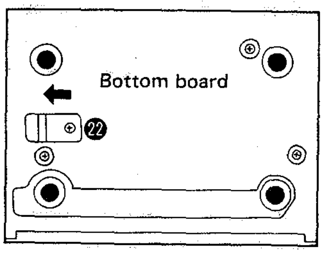
- Remove the 4 setscrews.


Connector (To tuner)
⑱
⑲
⑳
㉑
Rear panel



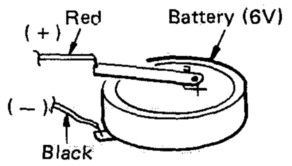
Ref. No. 5	**How to replace the battery**
Procedure 1 ➡ 5	

- Remove screw from the bottom and lift the battery cover while shifting it in the direction of the arrow.

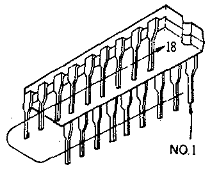
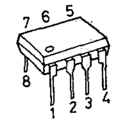
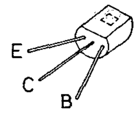
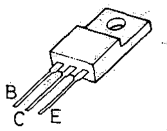
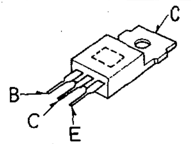

Bottom board
㉒

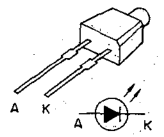
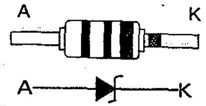
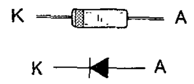
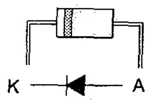
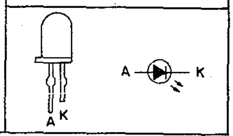
- Unsolder the lead wire of the battery.

Note: When soldering the battery lead wire, be careful of the polarity (+) or (–).

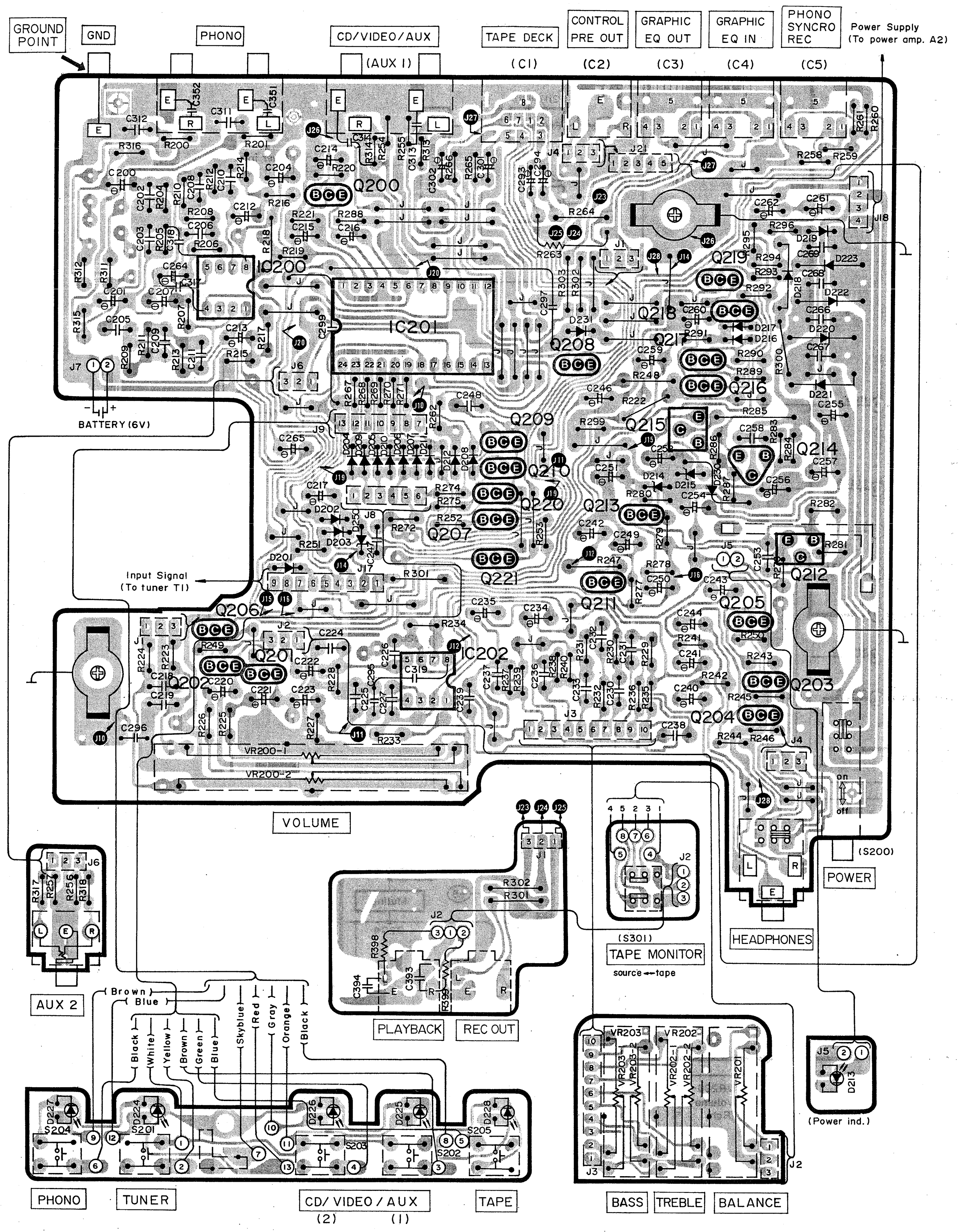

(+)
Red
Battery (6V)
(–)
Black

■ TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES

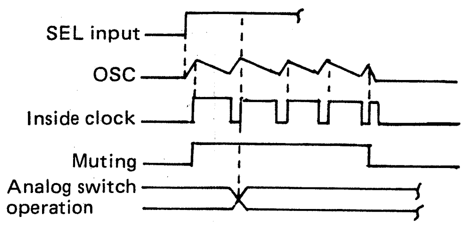
	SVINJM4556DB	2SC1685, 2SA564, 2SA684, 2SC3114	2SD1265	2SB941
 AN6558F 8 pin SVITC9152P 24 pin				

LN230RPP	MA4056M MA4150L MA4043L	MA165, MA167	SVDSR1K2LF	LN31GCPHLG, LN41YCPHL
				

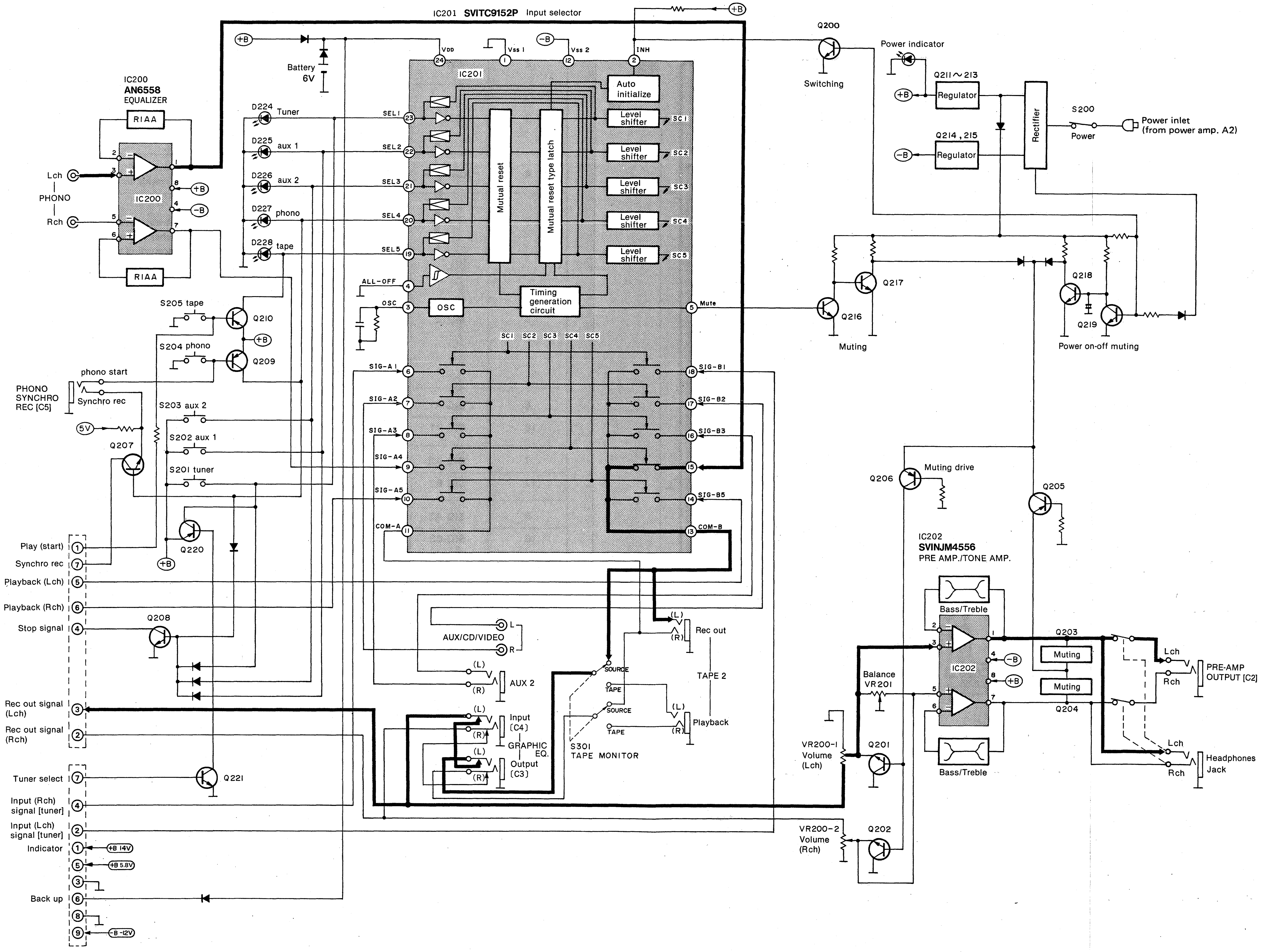
■ CIRCUIT BOARDS AND WIRING CONNECTION DIAGRAM

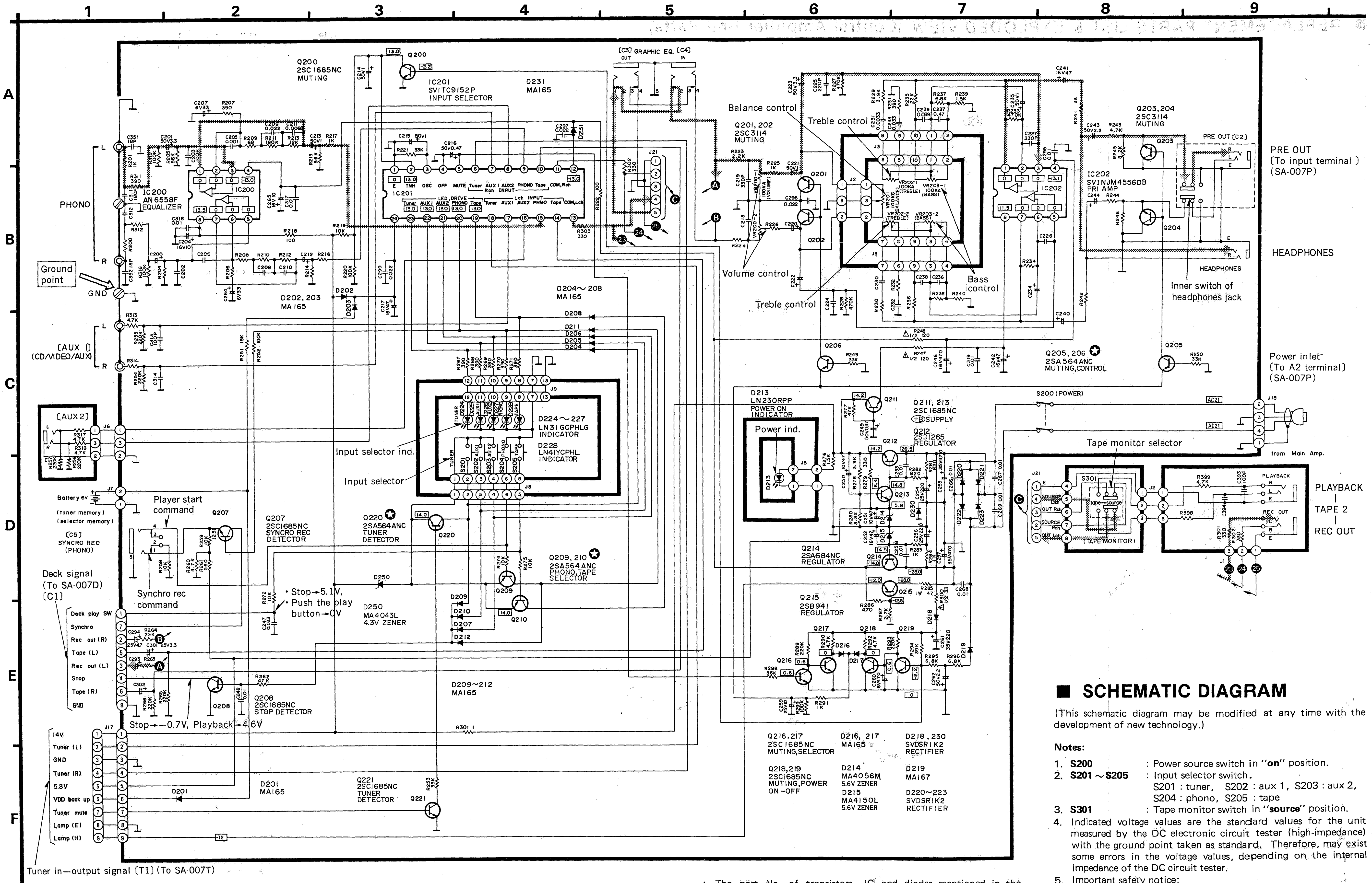

GROUND POINT
GND
PHONO
CD/VIDEO/AUX
(AUX I)
TAPE DECK
(C1)
CONTROL PRE OUT
(C2)
GRAPHIC EQ OUT
(C3)
GRAPHIC EQ IN
(C4)
PHONO SYNCRO REC
(C5)
Power Supply (To power amp. A2)
IC200
IC201
IC202
Q200
Q208
Q209
Q210
Q220
Q207
Q221
Q206
Q201
Q202
Q211
Q213
Q215
Q214
Q212
Q205
Q203
Q204
Q216
Q217
Q218
Q219
BATTERY (6V)
Input Signal (To tuner T1)
VR200-1
VR200-2
VOLUME
AUX 2
PLAYBACK
REC OUT
(S301)
TAPE MONITOR
source ⟵ tape
HEADPHONES
(S200)
POWER
(Power ind.)
Brown
Blue
Black
White
Yellow
Brown
Green
Blue
Skyblue
Red
Gray
Orange
Black
S204
S201
S203
S205
S202
VR203
VR202
VR201
PHONO
TUNER
CD/VIDEO/AUX
(2)
(1)
TAPE
BASS
TREBLE
BALANCE

■ FUNCTION OF TERMINAL (INPUT SELECTOR IC201)

Pin No.	Mark	Description of terminal
1	GND	Ground terminal.
2	INH	Inhibit input terminal. Normal operation at "H" level, and inhibit mode at "L" level.
3	OSC	C • R connection terminal for oscillator. Muting time and analog switch timing are set according to the frequency of this oscillator. Usually, oscillator is stopped but starts oscillating with SEL input, and stops after delivery of 5 clock output.
4	ALL-OFF	OFF assigning input terminal for all analog switches. When this terminal is at "H" level, all analog switches turn OFF.
5	MUTE	Muting signal output terminal. This terminal is at "H" level for a specific period of time when select input (SEL-1 ~ SEL-5) terminals receive "H" level, and analog switches are operated within that period. Muting output time can be freely designed according to OSC frequency.  SEL input OSC Inside clock Muting Analog switch operation
6	SIG-A1	Signal input terminal 1. (Tuner input). With SEL-1 selected, analog switch 1 turns ON, and then it conducts between this terminal and COM terminal.
18	SIG-B1	
7	SIG-A2	Signal input terminal 2. (Phono input) With SEL-2 selected, analog switch 2 turns ON, and then it conducts between this terminal and COM terminal.
17	SIG-B2	
8	SIG-A3	Signal input terminal 3. (Aux./CD/Video input) With SEL-3 selected, analog switch 3 turns ON, and then it conducts between this terminal and COM terminal.
16	SIG-B3	
9	SIG-A4	Signal input terminal 4. With SEL-4 selected, analog switch 4 turns ON, and then it conducts between this terminal and COM terminal.
15	SIG-B4	
10	SIG-A4	Signal input terminal 5. With SEL-5 selected, analog switch 5 turns ON, and then it conducts between this terminal and COM terminal.
14	SIG-B4	
11	COM-A2	Analog switch common terminal. Common terminal of analog switches 4 and 5.
13	COM-B2	
12	Vss	Apply −13V.
19	SEL-5	Select input terminal of each analog switch. When SEL-1 ~ SEL-5 terminals are at "H" level, each analog switch selected turns ON. SEL-1, SEL-2, SEL-3, and SEL-4, SEL-5 are of mutual reset types, and are OFF except in case of selected input. This terminal is an I/O terminal, also used for driver output for display. (LED driver is turned ON by inside latch circuit with "H" level input, and it is fixed at "H" level even when shifted to "L" level.)
20	SEL-4	
21	SEL-3	
22	SEL-2	
23	SEL-1	
24	V_{DD}	Apply 15V.

■ BLOCK DIAGRAM


IC201 SVITC9152P Input selector
IC200
AN6558
EQUALIZER
RIAA
IC200
Lch
PHONO
Rch
+B
−B
Battery
6V
D224 Tuner
D225 aux 1
D226 aux 2
D227 phono
D228 tape
VDD
Vss 1
Vss 2
INH
IC201
Auto initialize
Level shifter
Mutual reset
Mutual reset type latch
SEL1
SEL2
SEL3
SEL4
SEL5
SC1
SC2
SC3
SC4
SC5
ALL-OFF
OSC
Timing generation circuit
Mute
SIG-A1
SIG-A2
SIG-A3
SIG-A4
SIG-A5
COM-A
SIG-B1
SIG-B2
SIG-B3
SIG-B5
COM-B
S205 tape
Q210
S204 phono
Q209
phono start
PHONO SYNCHRO REC [C5]
Synchro rec
S203 aux 2
S202 aux 1
S201 tuner
5V
Q207
Q220
Play (start)
Synchro rec
Playback (Lch)
Playback (Rch)
Stop signal
Q208
Rec out signal (Lch)
Rec out signal (Rch)
Tuner select
Q221
Input (Rch) signal [tuner]
Input (Lch) signal [tuner]
Indicator
+B 14V
+B 5.8V
Back up
B −12V
AUX/CD/VIDEO
AUX 2
Input [C4]
GRAPHIC EQ.
Output [C3]
SOURCE
TAPE
S301 TAPE MONITOR
Rec out
TAPE 2
Playback
Q200
Switching
Power indicator
Q211～213
Regulator
Q214, 215
Regulator
Rectifier
S200
Power
Power inlet (from power amp. A2)
Q217
Q216
Muting
Q218
Q219
Power on-off muting
Q206
Muting drive
Q205
IC202
SVINJM4556
PRE AMP./TONE AMP.
Bass/Treble
IC202
Balance VR201
Q203
Muting
Q204
PRE-AMP OUTPUT [C2]
Headphones Jack
VR200-1 Volume (Lch)
Q201
VR200-2 Volume (Rch)
Q202


1
2
3
4
5
6
7
8
9
A
B
C
D
E
F
PHONO
Ground point
GND
(AUX 1)
(CD/VIDEO/AUX)
(AUX 2)
Battery 6V
(tuner memory)
(selector memory)
(C5)
SYNCRO REC
(PHONO)
Deck signal
(To SA-007D)
(C1)
Deck play SW
Synchro
Rec out (R)
Tape (L)
Rec out (L)
Stop
Tape (R)
GND
14V
Tuner (L)
GND
Tuner (R)
5.8V
VDD back up
Tuner mute
Lamp (E)
Lamp (H)
Tuner in—output signal (T1) (To SA-007T)
Q200
2SC1685NC
MUTING
IC200
AN6558F
EQUALIZER
IC201
SVITC9152P
INPUT SELECTOR
D231
MA165
D202, 203
MA165
D204～208
MA165
(C3) GRAPHIC EQ. (C4)
OUT
IN
J21
Balance control
Treble control
Q201, 202
2SC3114
MUTING
Volume control
Treble control
Bass control
Q203, 204
2SC3114
MUTING
IC202
SVINJM4556DB
PRI AMP
PRE OUT (C2)
PRE OUT
(To input terminal)
(SA-007P)
HEADPHONES
Inner switch of headphones jack
Q205, 206
2SA564ANC
MUTING, CONTROL
Power inlet
(To A2 terminal)
(SA-007P)
S200 (POWER)
J18
from Main Amp.
D213
LN230RPP
POWER ON INDICATOR
Power ind.
Q211, 213
2SC1685NC
(+B) SUPPLY
Q212
2SD1265
REGULATOR
Tape monitor selector
S301
TAPE MONITOR
PLAYBACK
TAPE 2
REC OUT
Q214
2SA684NC
REGULATOR
Q215
2SB941
REGULATOR
D224～227
LN31GCPHLG
INDICATOR
D228
LN41YCPHL
INDICATOR
Input selector ind.
Input selector
TUNER
AUX 1
AUX 2
PHONO
TAPE
Player start command
Q207
2SC1685NC
SYNCRO REC DETECTOR
Q220
2SA564ANC
TUNER DETECTOR
Q209, 210
2SA564ANC
PHONO, TAPE SELECTOR
Synchro rec command
Stop→5.1V,
Push the play button→0V
D250
MA4043L
4.3V ZENER
D209～212
MA165
Q208
2SC1685NC
STOP DETECTOR
Stop→−0.7V, Playback→4.6V
D201
MA165
Q221
2SC1685NC
TUNER DETECTOR
Q216, 217
2SC1685NC
MUTING, SELECTOR
D216, 217
MA165
D218, 230
SVDSR1K2
RECTIFIER
Q218, 219
2SC1685NC
MUTING, POWER ON-OFF
D214
MA4056M
5.6V ZENER
D215
MA4150L
5.6V ZENER
D219
MA167
D220～223
SVDSR1K2
RECTIFIER

■ SCHEMATIC DIAGRAM

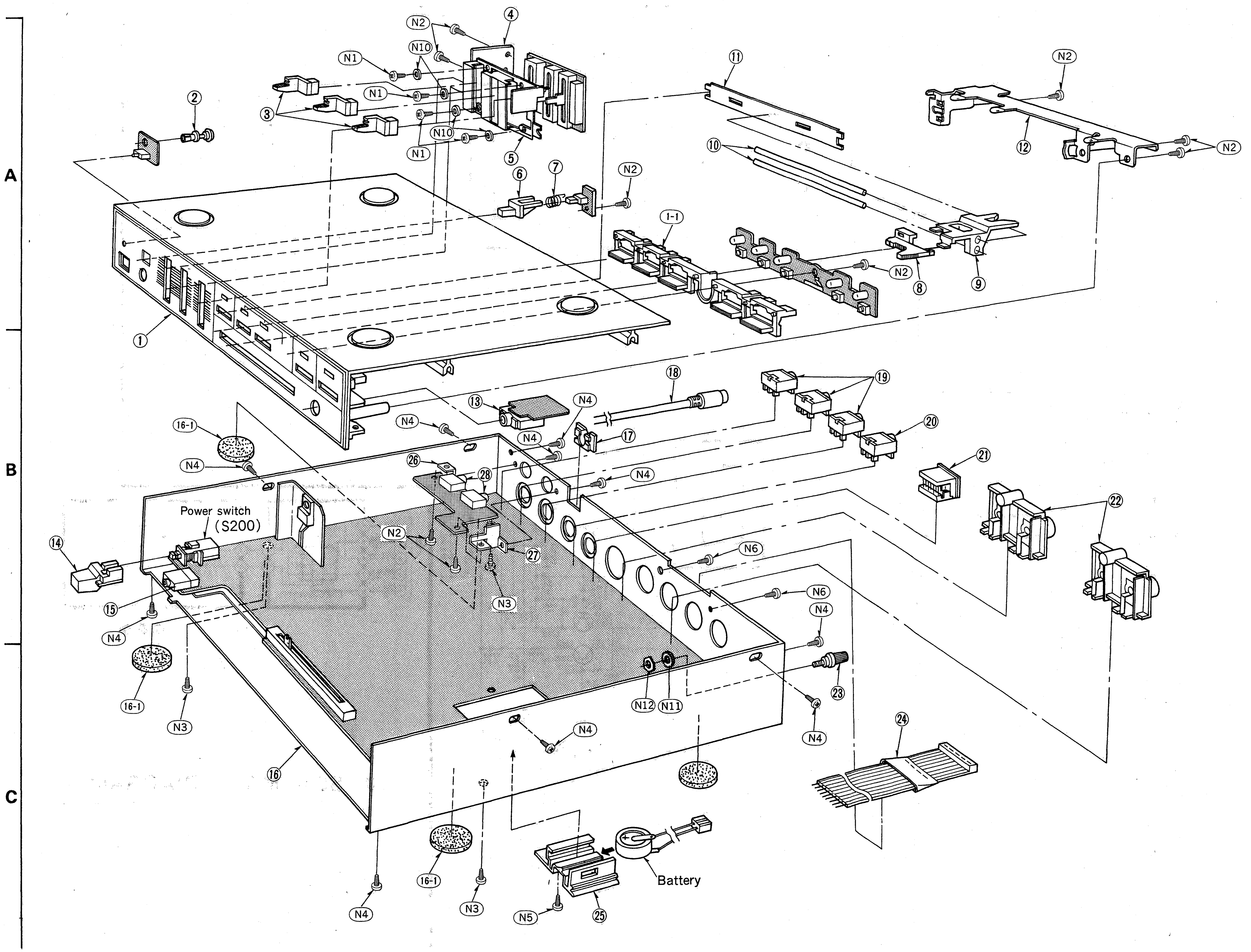
(This schematic diagram may be modified at any time with the development of new technology.)

Notes:

1. **S200** : Power source switch in "**on**" position.
2. **S201～S205** : Input selector switch.
   S201 : tuner, S202 : aux 1, S203 : aux 2,
   S204 : phono, S205 : tape
3. **S301** : Tape monitor switch in "**source**" position.
4. Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the ground point taken as standard. Therefore, may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
5. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
6. —— Positive voltage lines or negative voltage lines.
   ⋙⋙ Phono signal lines (L channel)

★ The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement part, please use the part No. in the replacement part list.

■ REPLACEMENT PARTS LIST & EXPLODED VIEW (Control Amplifier Unit Parts)



A	② ③ ④⑤⑥⑦ 1-1 ⑩⑪ ⑧ ⑨ ⑫
B	⑭ ⑮ ① 16-1 ㉖ ⑬㉘ ㉗ ⑰ ⑱ ⑲ ⑳ ㉑ ㉒
C	16-1 ⑯ 16-1 ㉕ 16-1 ㉓ ㉔

Notes:

1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts
4. Ⓚ -marked parts are used for black only, while ○-marked parts are for silver type only.
5. Part other than Ⓚ -and ○-marked are used for both black and silver type.
6. The unit of resistance is Ω (ohm).
   K = 1000Ω, M = 1000kΩ.
7. The unit capacitance is μF (microfarad).
   P = 10^{-6} μF
8. The parenthesized numbers in the column of description stand for the quantity per set.

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
1 ○	SGWA007C-SZ	Front Panel Ass'y (Silver Type) (1)
1 Ⓚ	SGWA007C-KX	Front Panel Ass'y (Black Type) (1)
[1-1	[SBC617	Button (1)
2	SHR415	Lock Pin (1)
3	SBD87	Knob (3)
4	SUW2169	Bracket (1)
5 ○	SGX7595-1	Ornament, Volume (Silver Type) (1)
5 Ⓚ	SGX7595	Ornament, Volume (Black Type) (1)
6	SBC621	Button (1)
7	SUS747	Spring (1)
8	SBD85	Knob (1)
9	SHR9689	Holder (1)
10	SUG89	Rod (2)
11 ○	SGX7597-1	Ornament, Volume (Silver Type) (1)
11 Ⓚ	SGX7597	Ornament, Volume (Black Type) (1)
12	SUW2139	Bracket (1)
13	SJJ77B	Jack, Aux 2 (1)
14	SBC619	Button, Power Source (1)
15	SJJ77G	Jack, Headphone (1)
16 ○	SGPA007C-SZ	Rear Panel Ass'y (Silver Type) (1)
16 Ⓚ	SGPA007C-KX	Rear Panel Ass'y (Black Type) (1)
[16-1	[SKL245-2	Foot (4)
17	SHR319	Bushing, AC Cord (1)
18	SWPA007CN	AC Cord (1)
19	SJJ73CK	Jack (3)
20	SJJ73BK	Jack (1)
21	SJS9701	Socket (1)
22	SJF3207-5N	Terminal Board (2)
23	SJF4101	Terminal (1)
24	SWKA007C-SN	Cord (1)
25	SJB9011-1	Battery Case (1)
26	SUW2173	Bracket (1)
27	SUW2171	Bracket (1)
28	SJJ75CK	Jack (1)
SCREWS		
N1 Ⓢ	XSN2+3	⊕2×3 (4)
N2	XTB26+8BFZ	Tapping, ⊕2.6×8 (9)
N3 ○	XTBS3+8FFN1	Tapping with Detent, ⊕3×8 (Silver Type) (3)
N3 Ⓚ	XTBS3+8FFZ1	Tapping with Detent, ⊕3×8 (Black Type) (3)
N4 ○	SNE2111-1	(Silver Type) (10)
N4 Ⓚ	SNE2111	(Black Type) (10)
N5 Ⓢ	XTB3+8BFZ	Tapping, ⊕3×8 (1)
N6 ○	XTBS3+8BFN1	Tapping with Detent, ⊕3×8 (Silver Type) (2)
N6 Ⓚ	XTBS3+8BFZ1	Tapping with Detent, ⊕3×8 (Black Type) (2)
WASHERS		
N10 Ⓢ	XWA2	Spring, φ2 (4)
N11 Ⓢ	XWC6B	External Toothead Lock, φ6 (1)
NUT		
N12 Ⓢ	XNG6E	φ6 (1)

Ref. No.	Part No.	Description
INTEGRATED CIRCUITS		
IC200	AN6558F	Equalizer
IC201	SVITC9152P	Input Selector
IC202	SVINJM4556DB	Pre Amp.
TRANSISTORS		
Q200, 207, 208, 211, 213, 216~219, 221 ⓢ	2SC1685−QNC	Muting, Synchro Rec and Stop Detector Supply, Switching, Tuner Detector
Q201~204	2SC3114	Muting,
Q205, 206, 209, 210, 220 ⓢ	2SA722−S	Muting, Control, Phono, Tape Selector, Tuner Det.
Q212	2SD1265−0	Regulator

Ref. No.	Part No.	Description
TRANSISTORS		
Q214 ⓢ	2SA684−QNC	Regulator
Q215	2SB941−Q	Regulator
DIODES		
D201~212, 216, 217, 231	MA165	Switching
D213	LN230RPP	L.E.D. (Power ON)
D214	MA4056M	Zener, 5.6V
D215	MA4150L	Zener, 15V
D218, 220~223, 230 ⚠	SVDSR1K2	Rectifier
D219	MA167	
D224~227	LN31GCPHLG	L.E.D. (Input)
D228	LN41YCPHL	L.E.D. (Tape)
D250	MA4043L	Zener, 4.3V

Ref. No.	Part No.	Description
VARIABLE RESISTORS		
VR200	EWAPB7X05A15	Volume, 100kΩ(A)
VR201	EWAKG4C10G15	Balance, 100kΩ(G)
VR202, 203	EWAKB7C10A15	Tone, 100kΩ(A)
BATTERY		
	BR2325−2T4	Selector Memory
SWITCHES		
S200 ⚠	SSH1127	Power Source
S201~205	SSG13	Input Selector
S301	SSH1145	Tape Monitor

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD : Carbon ERG : Metal Oxide	25 : 1/4W S2 : 1/4W S1 : 1/2W 1 : 1W 2 : 2W	J : ±5% G : ±2%

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Reculiarity use	Value	Special use

Capacitor Type	Voltage	Tolerance
ECEA : Electrolytic ECCD : Ceramic ECKD : Ceramic ECQM : Polyester ECQV : Polypropylene	OJ : 6.3V 1A : 10V 1C : 16V 1E : 25V 1H : 50V 1V : 35V	J : ±5% K : ±10% Z : +80%, −20%

• RESISTORS

Ref. No.	Part No.	Value
R200, 201	ERDS2TJ102	1K
R204, 205	ERDS2TJ563	56K
R206, 207	ERDS2TJ391	390
R208, 209	ERDS2TJ680	68
R210, 211	ERDS2TJ184	180K
R212, 213	ERDS2TJ123	12K
R214, 215	ERDS2TJ563	56K
R216, 217	ERDS2TJ102	1K
R218	ERD2FCG101	100
R219	ERDS2TJ103	10K
R220	ERDS2TJ104	100K
R221	ERDS2TJ333	33K
R222	ERD2FCG101	100
R223, 224	ERDS2TJ222	2.2K
R225, 226	ERDS2TJ102	1K
R227, 228	ERDS2TJ474	470K
R229, 230	ERDS2TJ392	3.9K
R231, 232	ERDS2TJ391	390
R233, 234	ERDS2TJ474	470K

Ref. No.	Part No.	Value
R235, 236	ERDS2TJ223	22K
R237, 238	ERDS2TJ682	6.8K
R239, 240	ERDS2TJ152	1.5K
R241, 242	ERDS2TJ330	33
R243, 244	ERDS2TJ472	4.7K
R245, 246	ERDS2TJ822	8.2K
R247, 248 ⚠	ERDS1FJ121	120
R249, 250	ERDS2TJ333	33K
R251	ERDS2TJ153	15K
R252	ERDS2TJ104	100K
R253	ERDS2TJ333	33K
R254, 255	ERDS2TJ224	220K
R256, 257	ERDS2TJ224	220K
R258, 259	ERDS2TJ103	10K
R260	ERDS2TJ472	4.7K
R261	ERDS2TJ561	560
R262	ERDS2TJ473	47K
R263, 264 ⓢ	ERDS2TJ223	22K

Ref. No.	Part No.	Value
R265, 266	ERDS2TJ224	220K
R267, 268	ERDS2TJ391	390
R269, 270	ERDS2TJ391	390
R271	ERDS2TJ391	390
R272	ERDS2TJ103	10K
R274, 275	ERDS2TJ103	10K
R276	ERDS2TJ152	1.5K
R277	ERDS2TJ473	47K
R278	ERDS2TJ392	3.9K
R279	ERDS2TJ331	330
R280	ERDS2TJ332	3.3K
R281, 282	ERDS2TJ821	820
R283, 284	ERDS2TJ102	1K
R285 ⓢ	ERG1ANJ470	47
R286	ERDS2TJ471	470
R287	ERDS2TJ272	2.7K
R288	ERDS2TJ563	56K
R289	ERDS2TJ224	220K

Ref. No.	Part No.	Value
R290	ERDS2TJ472	4.7K
R291	ERDS2TJ102	1K
R292	ERDS2TJ472	4.7K
R293	ERDS2TJ224	220K
R294	ERDS2TJ393	39K
R295, 296	ERDS2TJ682	6.8K
R299	ERDS2TJ104	100K
R300 ⚠	ERDS1FJ330	33
R301 ⓢ ⚠	ERD25FJ1R0	1
R301, 302 ⓢ	ERD25FJ331	330
R302, 303 ⓢ	ERD25FJ331	330
R311, 312	ERDS2TJ391	390
R313, 314	ERDS2TJ472	4.7K
R315, 316	ERDS2TJ224	220K
R317, 318	ERDS2TJ472	4.7K
R398, 399	ERDS2TJ472	4.7K

• CAPACITORS

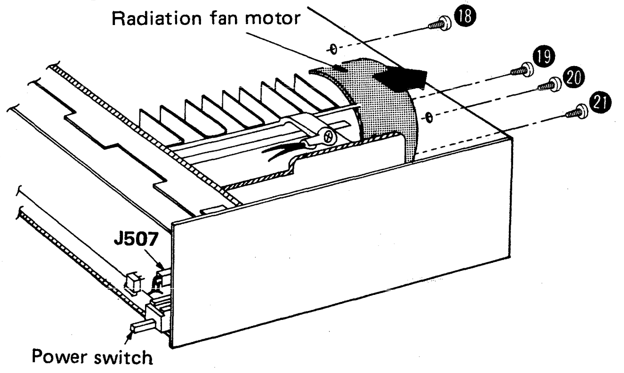
Ref. No.	Part No.	Value
C200, 201	ECEA1HU3R3	3.3
C202, 203 ⓢ	ECCD1H101K	100P
C204	ECEA1CU100	10
C205, 206 ⓢ	ECKD1H102ZF	0.001
C207	ECEA0JU330	33
C208, 209 ⓢ	ECQM1H223JZ	0.022
C210, 211 ⓢ	ECQM1H682JZ	0.0068
C212, 213	ECEA1HU010	1
C214, 215	ECEA1HU010	1
C216	ECEA1HUR47	0.47
C217	ECEA1CU470	47
C218, 219 ⓢ	ECKD1H331KB	330P
C220, 221	ECEA1HU010	1
C222, 223	ECEA1HU3R3	3.3

Ref. No.	Part No.	Value
C224, 225 ⓢ	ECKD1H221KB	220P
C226, 227 ⓢ	ECKD1H331KB	330P
C230, 231 ⓢ	ECQM1H332JZ	0.0033
C232, 233 ⓢ	ECQM1H333JZ	0.033
C234, 235	ECEA1HU010	1
C236, 237	ECQV5474JC	0.47
C238, 239 ⓢ	ECQM1H393JZ	0.039
C240, 241	ECEA1CU470	47
C242	ECEA1CU470	47
C243, 244	ECEA1HU2R2	2.2
C246	ECEA1CU471	470
C247 ⓢ	ECQM1H333JZ	0.033
C248 ⓢ	ECKD1H103ZF	0.01
C249	ECEA1HUR47	0.47

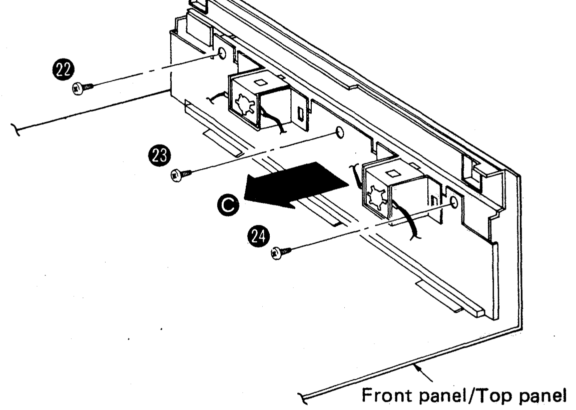
Ref. No.	Part No.	Value
C250	ECEA1AU470	47
C251, 252	ECEA1CU470	47
C253 ⓢ	ECKD1H103ZF	0.01
C254	ECEA1EU221	220
C255	ECEA1VU471	470
C256	ECEA1EU221	220
C257	ECEA1VU471	470
C258 ⓢ	ECKD1H103ZF	0.01
C259	ECEA1EU100	10
C260	ECEA0JU471	470
C261	ECEA1VU221	220
C262	ECEA1HU2R2	2.2
C264	ECEA0JU330	33

Ref. No.	Part No.	Value
C265	ECEA1CU100	10
C266, 267 ⓢ	ECKD1H103ZF	0.01
C268, 269 ⓢ	ECKD1H103ZF	0.01
C293, 294	ECEA1EU4R7	4.7
C295 ⓢ	ECKD1H103ZF	0.01
C296, 297 ⓢ	ECKD1H223ZF	0.022
C299 ⓢ	ECKD1H223ZF	0.022
C301, 302	ECEA1EU3R3	3.3
C311, 312 ⓢ	ECCD1H181K	180P
C313, 314 ⓢ	ECCD1H101K	100P
C317, 318 ⓢ	ECKD1H103ZF	0.01
C319 ⓢ	ECKD1H103ZF	0.01
C351, 352 ⓢ	ECCD1H180K	18P
C393, 394 ⓢ	ECCD1H101K	100P

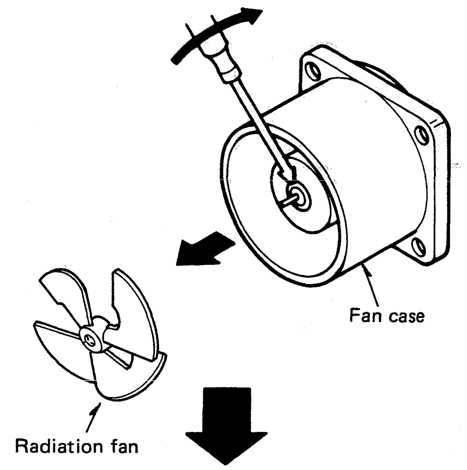
Ref. No. 5	How to remove the radiation fan motor
Procedure 1➡2➡5	● Detach the 1 connector. **(J507)** ● Remove the 4 setscrews.


Radiation fan motor
⑱
⑲
⑳
㉑
J507
Power switch

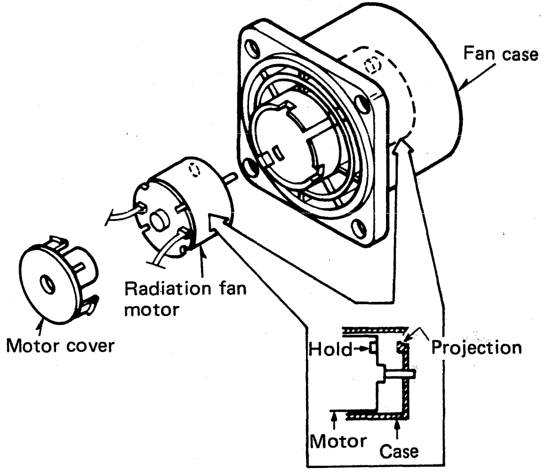
Ref. No. 6	How to remove the peak power meter
Procedure 1➡6	● Detach the 2 connectors. **(J505 and J508)** ● Remove the 3 setscrews.


㉒
㉓
Ⓒ
㉔
Front panel/Top panel

- Remove the fan by use of a screwdriver.


Fan case
Radiation fan

- Remove the motor cover.


Fan case
Radiation fan motor
Motor cover
Hold
Projection
Motor
Case

When fitting the fan motor, match the projection of fan case with the hole in the fan motor.

■ PROTECTION CIRCUITRY

The protection circuitry may have operated if either of the following conditions is noticed:

- No sound is heard when the power is turned on.
- Sound stops during a performance.

The function of this circuitry is to prevent circuitry damage if, for example, the positive and negative speaker connection wires are "shorted", or if speaker systems with an impedance less than the indicated rated impedance of this unit are used.

If this occurs, follow the procedure outlines below:

1. Turn off the power.
2. Determine the cause of the problem and correct it.
3. Turn on the power once again after one minute.

Note

When the protection circuitry functions, the unit will not operate unless the power is first turned off and then on again.

■ BEFORE REPAIR AND ADJUSTMENT

1. Turn off the power supply and short-circuit of power supply capacitors (C527 and C528, 6800μF) at resistance (about 10Ω, 5W) in order to discharge the charged voltage. Do not short between C527 and C528 by screwdriver. It may damage the component.
2. Before turning on the power supply after completion of repair, slowly apply the primary voltage by using a power supply voltage controller to make sure that the consumed current is free of abnormality. The consumed current at 60 Hz/50 Hz in no signal mode is shown below with respect to supply voltage 220V.

Power supply voltage		AC 220V
Cousumed current	50 Hz	50 ~ 170mA
	60 Hz	40 ~ 160mA

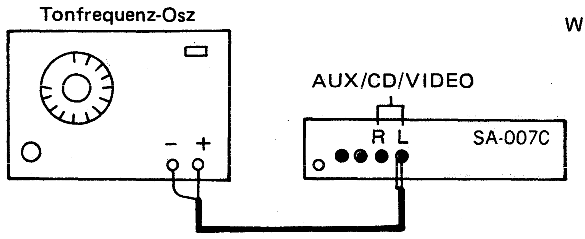
■ MESSUNGEN UND JUSTIERUNGEN

- **Prüfung des Überlast-Detektors und der Schutzschaltung**

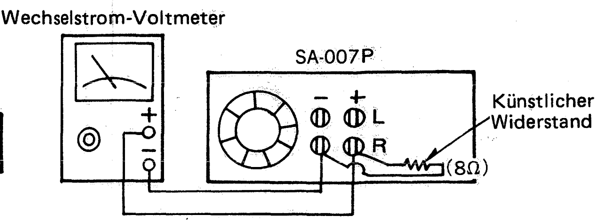
1. Wechselstrom-Voltmeter und 6Ω-Last (Widerstand oder Lautsprecher) an den Lautsprecheranschluß anschließen. (L. Kanal)
2. Ausgangssignal von ca. 5V bei 1 kHz an AUX/CD/Video-(SA-007C)-Eingangsanschluß anlegen. **[Abb. 1]**
3. Sicherstellen, daß kein Ausgang auftritt, wenn mit einem 2W, 0,17Ω-Widerstand kurzgeschlossen wird. **[Abb. 2]**
4. Wenn der Netzschalter nach dem Ausschalten wieder eingeschaltet wird, sollte wieder ein Ausgang ausgegeben werden.
5. Den R. Kanal auf gleiche Weise prüfen.

- **Justierung des Spitzenwert-Pegelmeters**

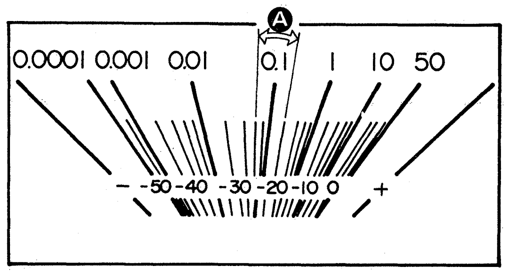
1. Einen künstlichen Widerstand von 8Ω oder einen Lautsprecher von 8Ω Impedanz an den Lautsprecheranschluß anschließen und den Netzschalter einschalten.
2. Ein Signal von 1 kHz Sinuswelle an den AUX/CD/Video-(SA-007C)-Eingangsanschluß anlegen. **[Abb. 1]**
3. Den Lautstärkeregler auf Maximum einstellen und die Eingangsleistung so regeln, daß die Ausgangsleistung an den Lautsprecheranschluß **8,94V** beträgt.
4. Beide Kanäle von **VR501** (L. Kanal) und **VR502** (R. Kanal) so justieren, daß die Anzeige des Meters 10W beträgt.
5. Anschließend die Eingangsleistung so regeln, daß die Ausgangsleistung des Lautsprecheranschlußes **0,89V** beträgt.
6. Sicherstellen, daß die Meteranzeige innerhalb des Bereiches Ⓐ in **Abb. 3** ist. (L. und R. Kanal)


Tonfrequenz-Osz
− +
AUX/CD/VIDEO
R L
SA-007C

[Abb. 1]

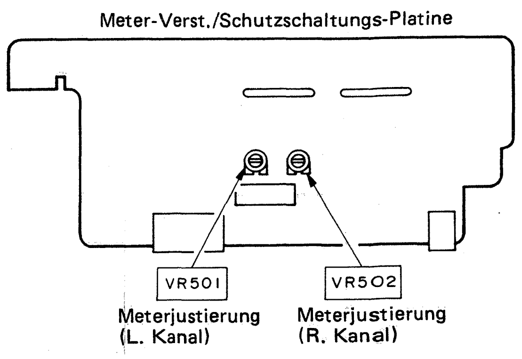

Wechselstrom-Voltmeter
+
−
SA-007P
− +
L
R
Künstlicher Widerstand
(8Ω)

[Abb. 2]


Ⓐ
0.0001 0.001 0.01 0.1 1 10 50
− -50 -40 -30 -20 -10 0 +

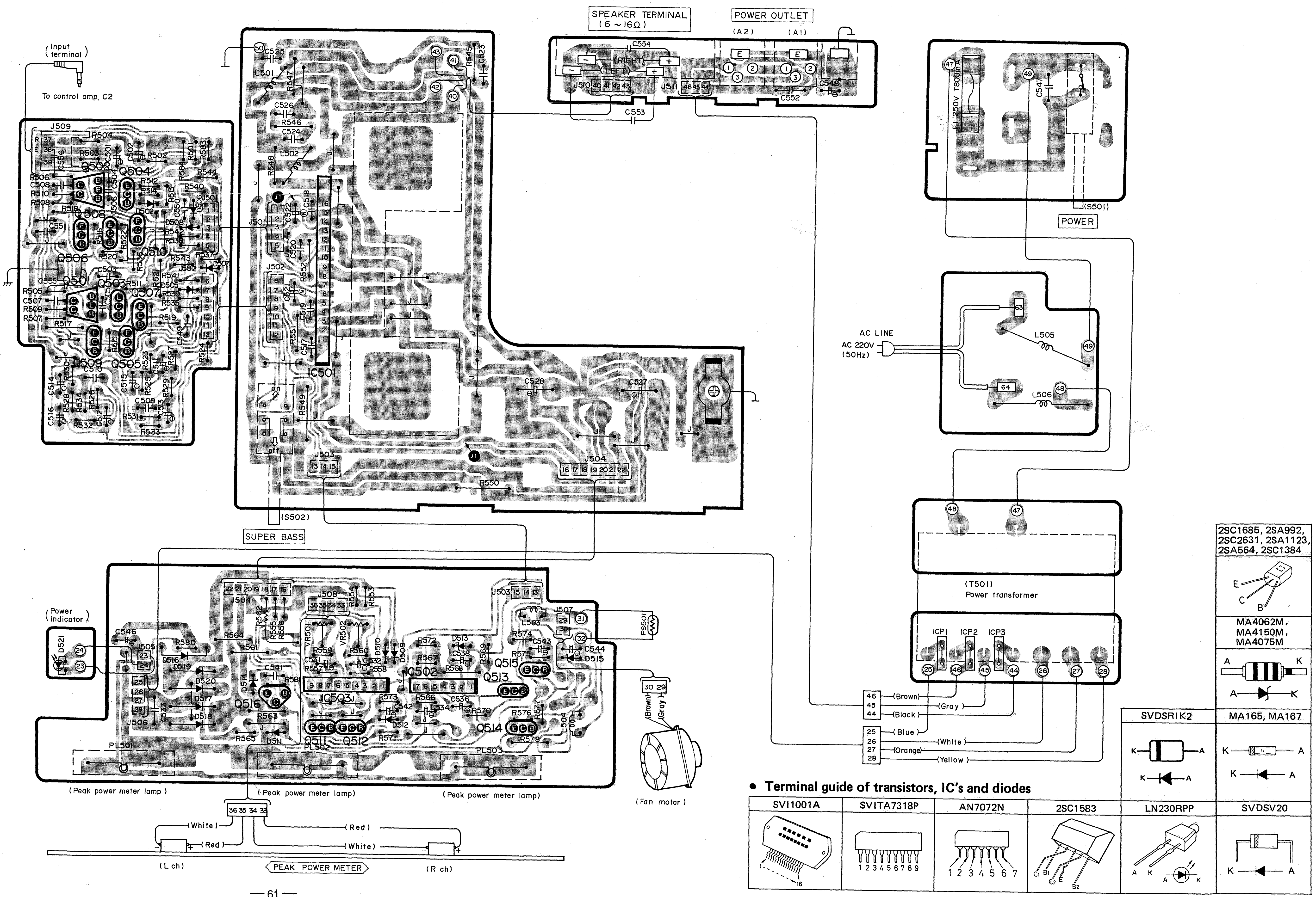
[Abb. 3]

- **Zu justierende Punkte**

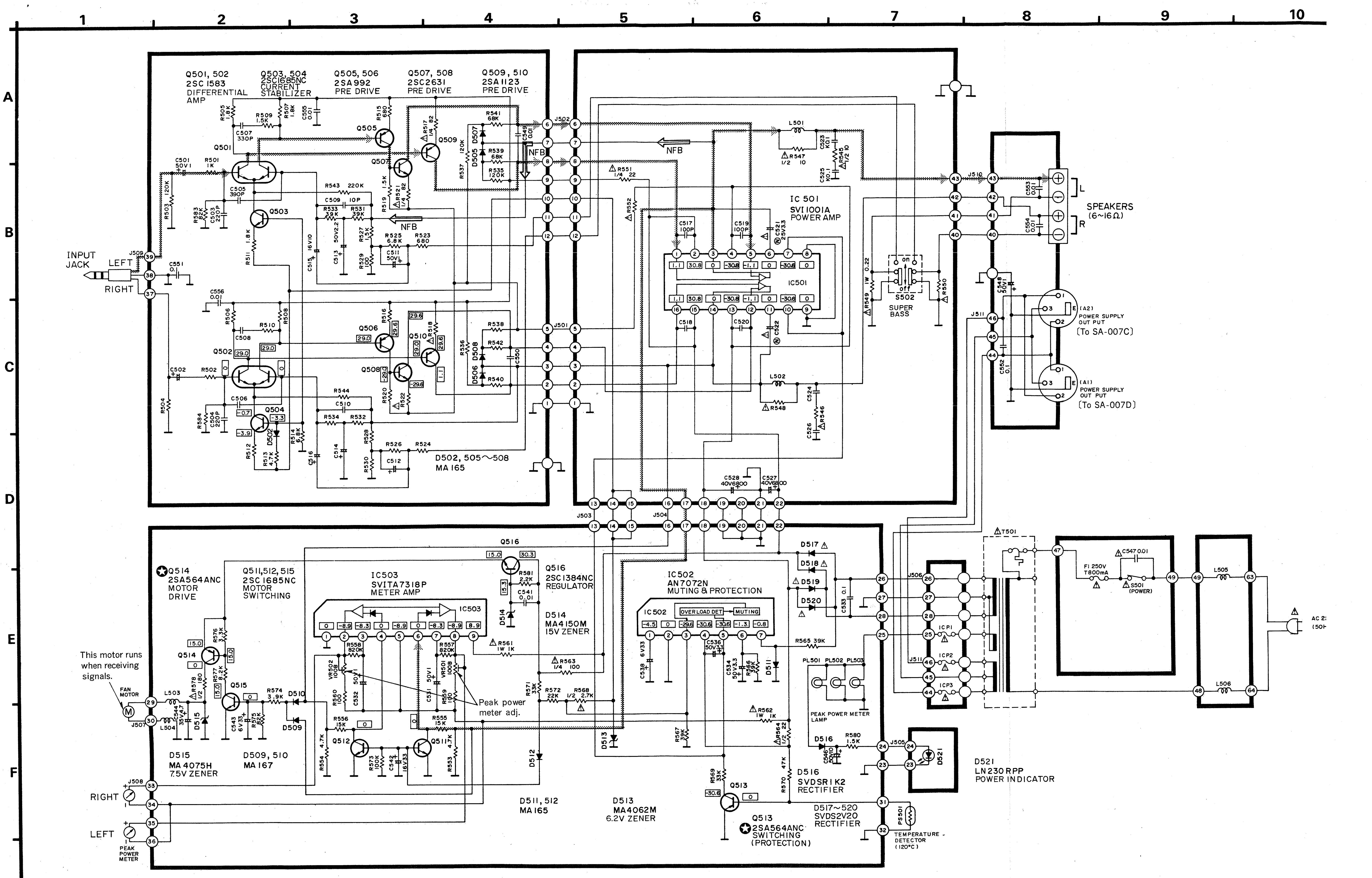

Meter-Verst./Schutzschaltungs-Platine
VR501
Meterjustierung (L. Kanal)
VR502
Meterjustierung (R. Kanal)

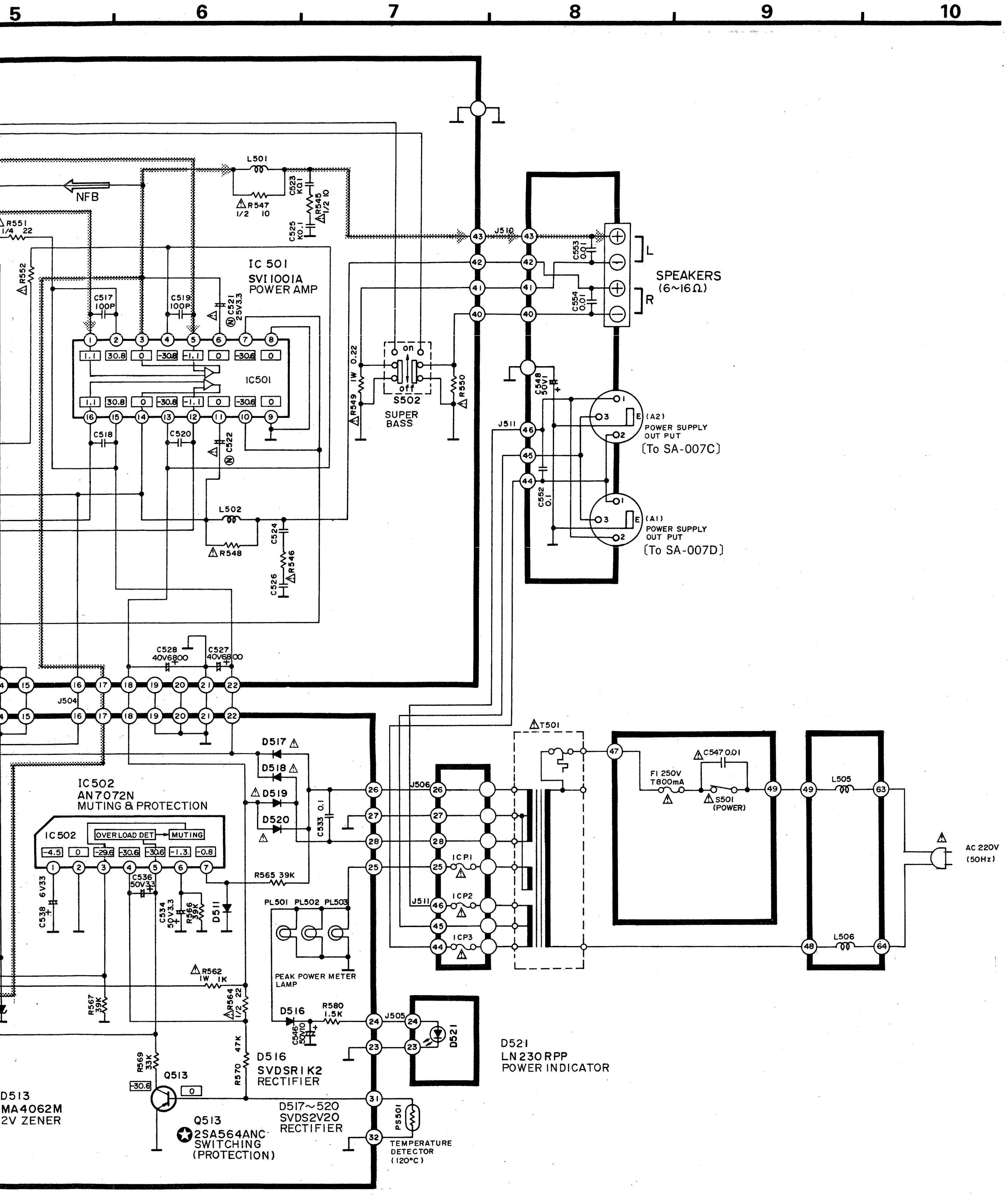
[Abb. 4]

■ CIRCUIT BOARD AND WIRING CONNECTION DIAGRAM


(Input terminal)
To control amp. C2
SPEAKER TERMINAL (6 ~ 16Ω)
(RIGHT)
(LEFT)
POWER OUTLET
(A2)
(A1)
E
C554
C553
C552
C548
J510
J511
C525
C523
R545
L501
R547
C526
R546
C524
L502
R548
J509
R504
R503
R502
R501
R506
C508
R510
R508
Q504
Q508
Q510
Q506
Q501
Q503
Q507
Q509
Q505
R505
C507
R509
R507
R517
C555
J501
J502
IC501
R549
off
J503
J504
R550
C528
C527
(S502)
SUPER BASS
F1 250V T800mA
C547
(S501)
POWER
AC LINE
AC 220V (50Hz)
L505
L506
(T501)
Power transformer
ICP1
ICP2
ICP3
(Brown)
(Gray)
(Black)
(Blue)
(White)
(Orange)
(Yellow)
(Power indicator)
D521
C546
J505
R580
R564
R561
D516
D519
D520
D517
D518
J506
C533
D514
Q516
R563
R565
D511
C541
R581
IC503
Q511
Q512
J508
VR501
VR502
R559
C531
R557
R560
C532
R558
D510
D509
R572
D513
R567
C538
R568
IC502
C542
R573
R566
C536
D512
C534
R570
R571
Q513
Q514
Q515
R569
R574
C543
R575
C544
D515
L503
J507
PS501
R576
R577
R578
L504
PL501
PL502
PL503
(Fan motor)
(Peak power meter lamp)
(White)
(Red)
(L ch)
PEAK POWER METER
(R ch)
2SC1685, 2SA992, 2SC2631, 2SA1123, 2SA564, 2SC1384
E
C
B
MA4062M, MA4150M, MA4075M
A
K
SVDSRIK2
MA165, MA167
SVI1001A
SVITA7318P
AN7072N
2SC1583
LN230RPP
SVDSV20
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7
C1 B1 C2 E B2
16

- **Terminal guide of transistors, IC's and diodes**


Q501, 502 2SC1583 DIFFERENTIAL AMP
Q503, 504 2SC1685NC CURRENT STABILIZER
Q505, 506 2SA992 PRE DRIVE
Q507, 508 2SC2631 PRE DRIVE
Q509, 510 2SA1123 PRE DRIVE
NFB
INPUT JACK
LEFT
RIGHT
J509
J502
J501
J503
J504
J510
J511
D502, 505～508 MA165
IC 501 SVI1001A POWER AMP
S502 SUPER BASS
on
off
SPEAKERS (6～16Ω)
L
R
POWER SUPPLY OUT PUT (To SA-007C)
POWER SUPPLY OUT PUT (To SA-007D)
Q514 2SA564ANC MOTOR DRIVE
Q511,512, 515 2SC1685NC MOTOR SWITCHING
IC503 SVITA7318P METER AMP
Q516 2SC1384NC REGULATOR
D514 MA4150M 15V ZENER
IC502 AN7072N MUTING & PROTECTION
OVERLOAD DET
MUTING
This motor runs when receiving signals.
FAN MOTOR
Peak power meter adj.
D515 MA4075H 7.5V ZENER
D509, 510 MA167
D511, 512 MA165
D513 MA4062M 6.2V ZENER
RIGHT
LEFT
PEAK POWER METER
PEAK POWER METER LAMP
D516 SVDSR1K2 RECTIFIER
D517～520 SVDS2V20 RECTIFIER
Q513 2SA564ANC SWITCHING (PROTECTION)
TEMPERATURE DETECTOR (120°C)
D521 LN230RPP POWER INDICATOR
T501
F1 250V T800mA
C547 0.01
S501 (POWER)
ICP1
ICP2
ICP3
L505
L506
AC 2
(50H
1
2
3
4
5
6
7
8
9
10
A
B
C
D
E
F


5
6
7
8
9
10
NFB
L501
C523 K0.1
R547 1/2 10
R545 1/2 10
C525 K0.1
R551 1/4 22
R552
IC 501
SVI1001A
POWER AMP
C517 100P
C519 100P
C521 25V3.3
IC501
C518
C520
C522
L502
R548
C524
R546
C526
J510
C553 0.01
C554 0.01
SPEAKERS (6~16Ω)
L
R
R549 1W 0.22
on
off
S502
SUPER BASS
R550
C548 50V1
J511
(A2) POWER SUPPLY OUT PUT
(To SA-007C)
C552 0.1
(A1) POWER SUPPLY OUT PUT
(To SA-007D)
C528 40V6800
C527 40V6800
J504
IC502
AN7072N
MUTING & PROTECTION
OVER LOAD DET
MUTING
C536 50V3.3
C538 6V33
C534
R566
D511
D517
D518
D519
D520
C533 0.1
R565 39K
J506
ICP1
ICP2
ICP3
T501
FI 250V T800mA
C547 0.01
S501 (POWER)
L505
L506
AC 220V (50Hz)
PL501 PL502 PL503
PEAK POWER METER LAMP
R562 1W 1K
R564 1/2 22
R567 33K
R569 33K
R570 47K
D516
R580 1.5K
C546
D516
SVDSR1K2
RECTIFIER
J505
D521
D521
LN230RPP
POWER INDICATOR
Q513
D513
MA4062M
2V ZENER
Q513
✪2SA564ANC
SWITCHING
(PROTECTION)
D517~520
SVDS2V20
RECTIFIER
PS501
TEMPERATURE DETECTOR (120°C)

■ SCHEMATIC DIAGRAM

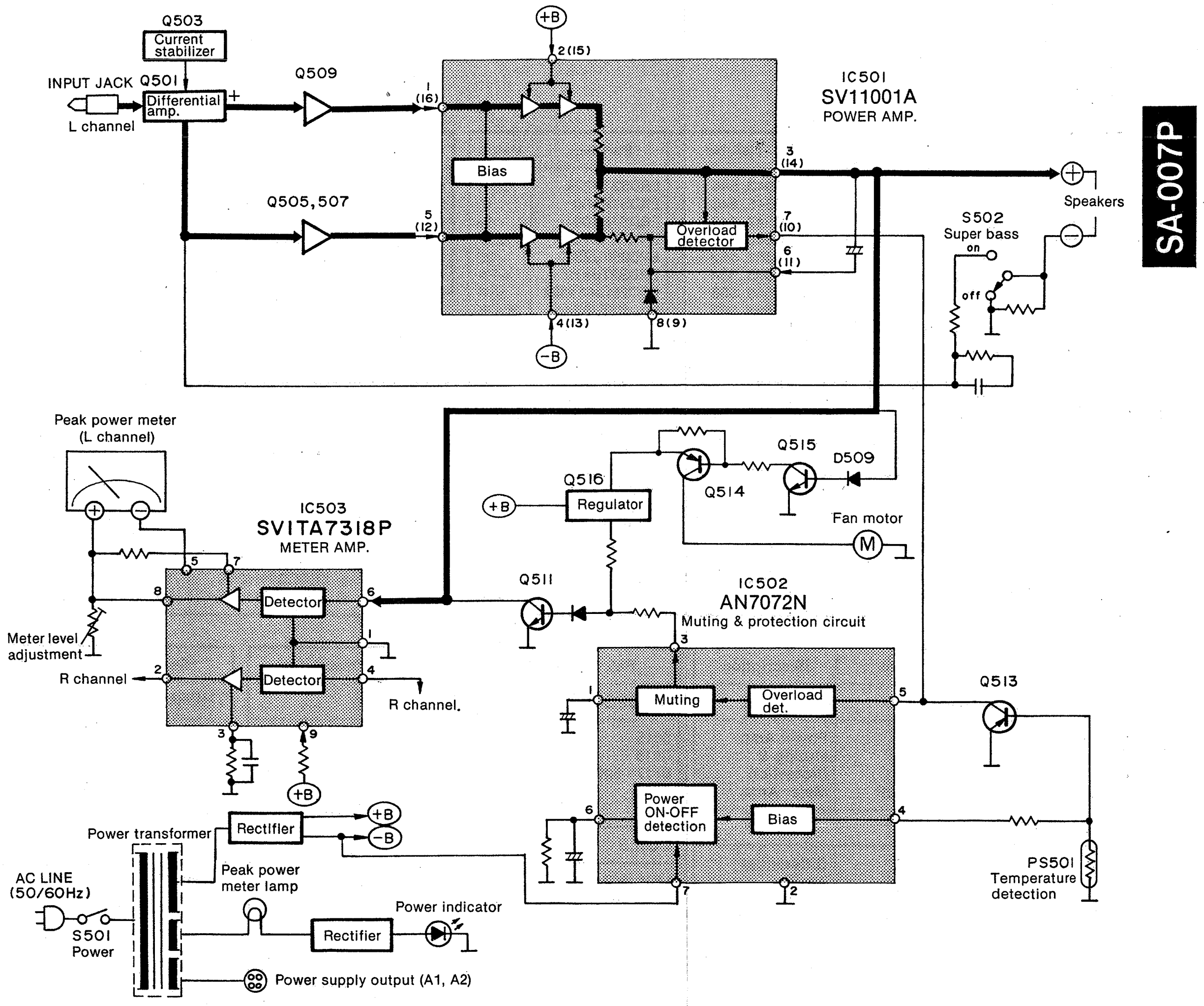
(This schematic diagram may be modified at any time with the development of new technology.)

- The part No. of transistors, IC and diodes mentioned in the schematic diagram stand for production part No. Regarding the part No. with ✪ mark, the production part No. are different from the replacement part No. Therefore, when placing an order for replacement part, please use the part No. in the replacement parts list.

Notes:

1. **S501** : Power source switch in "**on**" position.
2. **S502** : Super bass switch in "**off**" position.
3. ▭ Indicated voltage values are the standard values for the unit measured by the DC electronic circuit tester (high-impedance) with the chassis taken as standard.
   Therefore, there may exist some errors in the voltage values, depending on the internal impedance of the DC circuit tester.
4. Important safety notice:
   Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components, use only manufacturer's specified parts.
5. —— Positive voltage lines or negative voltage lines. ▒▒▒▷ L channel signal lines.

■ BLOCK DIAGRAM


Q503
Current stabilizer
INPUT JACK
Q501
Differential amp.
L channel
Q509
Q505,507
(+B)
2(15)
1 (16)
5 (12)
Bias
Overload detector
3 (14)
7 (10)
6 (11)
4(13)
8(9)
(-B)
IC501
SV11001A
POWER AMP.
Speakers
S502
Super bass
on
off
Peak power meter (L channel)
IC503
SVITA7318P
METER AMP.
Detector
Detector
Meter level adjustment
R channel
R channel.
(+B)
Q516
Regulator
Q515
Q514
D509
Fan motor
Q511
IC502
AN7072N
Muting & protection circuit
Muting
Overload det.
Power ON-OFF detection
Bias
Q513
PS501
Temperature detection
Power transformer
Rectifier
(+B)
(-B)
AC LINE (50/60Hz)
S501
Power
Peak power meter lamp
Power indicator
Rectifier
Power supply output (A1, A2)

■ RESISTORS, CAPACITORS & REPLACEMENT PARTS LIST & EXPLODED VIEW (Power Amplifier Unit Parts)

Notes:
1. Part numbers are indicated on most mechanical parts. Please use this part number for parts orders.
2. Important safety notice: Components identified by ⚠ mark have special characteristics important for safety. When replacing any of these components use only manufacturer's specified parts.
3. The "Ⓢ" mark is service standard parts and may differ from production parts.
4. Ⓚ -marked parts are used for black only, while ○-marked parts are for silver type only.
5. Part other than Ⓚ -and ○-marked are used for both black and silver type.
6. The unit of resistance is Ω (ohm). K = 1000Ω, M = 1000kΩ.
7. The unit capacitance is μF (microfarad). P = 10^{-6} μF
8. The parenthesized numbers in the column of description stand for the quantity per set.

Numbering System of Resistor

Example

ERD	25	F	J	101
Type	Wattage	Shape	Tolerance	Value

Resistor Type	Wattage	Tolerance
ERD : Carbon ERO : Metal Oxide ERX : Metal Film ERG : Metal Oxide	S2 : 1/4W 25 : 1/4W S1 : 1/2W 1 : 1W 2 : 2W	J : ± 5% G : ± 2% K : ± 10%

Numbering System of Capacitor

Example

ECKD	1H	102	Z	F
Type	Voltage	Value	Tolerance	Peculiarity

ECEA	50	M	R47	R
Type	Voltage	Reculiarity use	Value	Special use

Capacitor Type	Voltage	Tolerance
ECEA : Electrolytic ECCD : Ceramic ECQM : Polyester ECQE : Polyester ECET : Electrolytic	OJ : 6.3V 1C : 16V 1E : 25V 1H : 50V 1V : 35V KC : 400VAC 2H : 500V	K : ± 10% Z : +80%, −20% P : +100%, −0%

● RESISTORS

Ref. No.	Part No.	Value
R501, 502	ERDS2TJ102	1K
R503, 504	ERDS2TJ124	120K
R505, 506	ERDS2TJ182	1.8K
R507, 508	ERDS2TJ182	1.8K
R509, 510	ERDS2TJ152	1.5K
R511, 512	ERDS2TJ182	1.8K
R513	ERDS2TJ472	4.7K
R514	ERDS2TJ682	6.8K
R515, 516	ERDS2TJ681	680
R517, 518 Ⓢ⚠	ERD25FJ820	82
R519, 520	ERDS2TJ152	1.5K
R521, 522 Ⓢ⚠	ERD25FJ820	82
R523, 524	ERDS2TJ681	680
R525, 526	ERDS2TJ682	6.8K
R527, 528	ERO25CKF1501	1.5K
R529, 530	ERO25CKF1000	100
R531, 532	ERDS2TJ393	39K
R533, 534	ERDS2TJ393	39K
R535, 536	ERDS2TJ124	120K
R537, 538	ERDS2TJ124	120K
R539, 540	ERDS2TJ683	68K
R541, 542	ERDS2TJ683	68K

Ref. No.	Part No.	Value
R543, 544	ERDS2TJ224	220K
R545, 546 ⚠	ERDS1F100	10
R547, 548 ⚠	ERDS1F100	10
R549, 550 Ⓢ	ERX1ANJR22	0.22
R551, 552 Ⓢ⚠	ERD25FJ220	22
R553, 554	ERDS2TJ472	4.7K
R555, 556	ERO25CKF1502	15K
R557, 558	ERDS2TJ824	820K
R559, 560	ERDS2TJ101	100
R561, 562 Ⓢ	ERG1ANJ102	1K
R563 Ⓢ ⚠	ERD25FJ101	100
R564	ERD2FCG220	22
R565, 566	ERDS2TJ393	39K
R567	ERDS2TJ393	39K
R568 ⚠	ERDS1FJ272	2.7K
R569	ERDS2TJ333	33K
R570	ERDS2TJ473	47K
R571	ERDS2TJ333	33K
R572	ERDS2TJ223	22K
R573	ERDS2TJ104	100K
R574	ERDS2TJ392	3.9K
R575	ERDS2TJ823	82K

Ref. No.	Part No.	Value
R576	ERDS2TJ332	3.3K
R577	ERDS2TJ822	8.2K
R578 ⚠	ERDS1FJ181	180
R580	ERDS2TJ152	1.5K
R581	ERDS2TJ222	2.2K
R583, 584	ERDS2TJ823	82K

● CAPACITORS

Ref. No.	Part No.	Value
C501, 502	ECEA1HU010	1
C503, 504 Ⓢ	ECCD1H221K	220P
C505, 506 Ⓢ	ECKD1H391KB	390P
C507, 508 Ⓢ	ECKD1H331KB	330P
C509, 510 Ⓢ	ECCD1H100KC	10P
C511, 512	ECEA1HU010	1
C513, 514	ECEA1HU2R2	2.2
C515, 516	ECEA1CU100	10
C517, 518 Ⓢ	ECCD1H101K	100P
C519, 520 Ⓢ	ECCD1H101K	100P

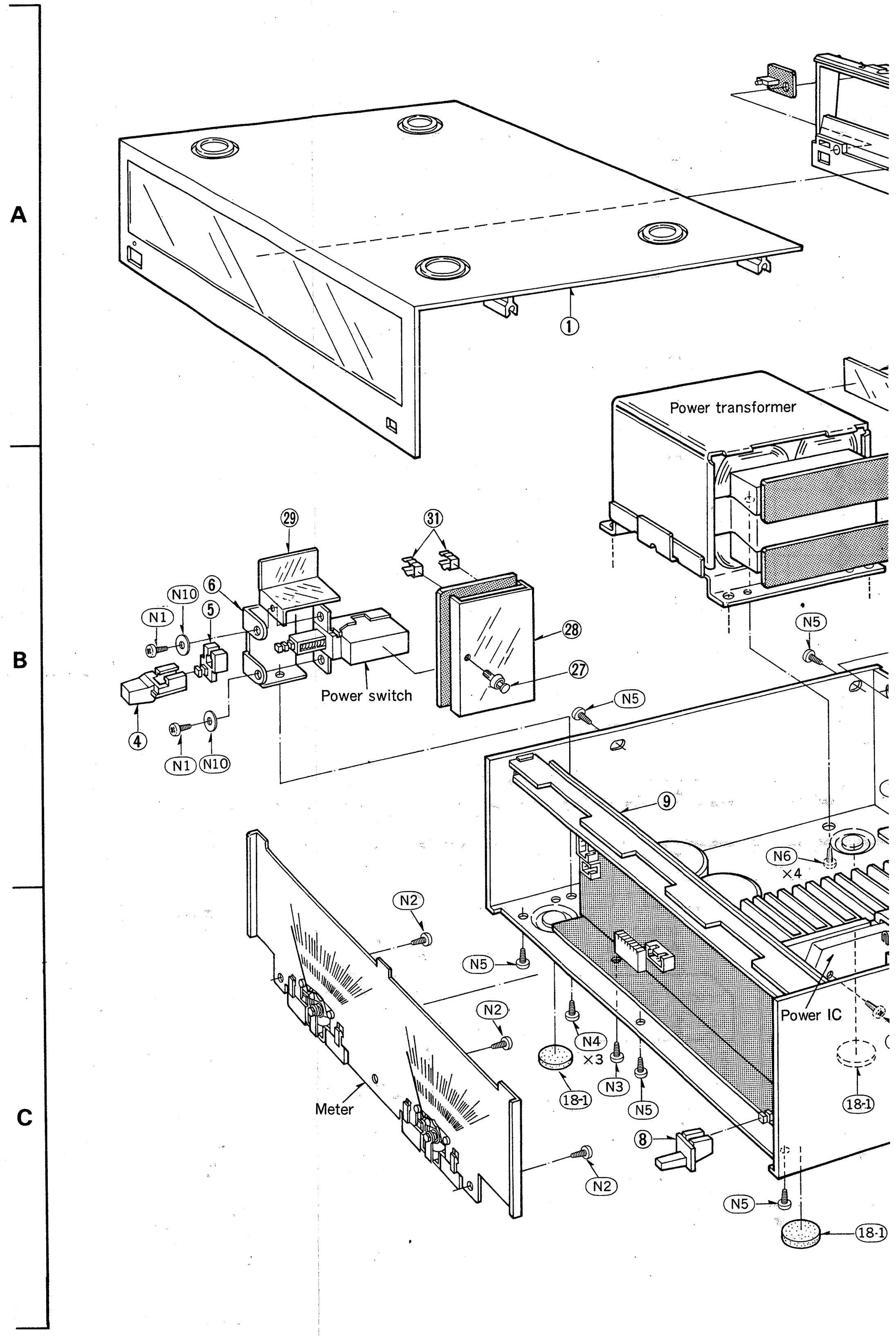
Ref. No.	Part No.	Value
C521, 522 ⚠	ECEA1EN3R3S	3.3
C523, 524	ECQM1H104JZ	0.1
C525, 527	ECQM1H104JZ	0.1
C527, 528	ECETS40V682U	6800
C531, 532	ECEA1HU010	1
C533 ⚠	ECQE1104KN	0.01
C534	ECEA1HG3R3S	3.3
C536	ECEA1HG3R3S	3.3
C538	ECEA0JU330	33
C541 Ⓢ	ECKD1H103ZF	0.01
C542	ECEA1CG330S	33
C543	ECEA0JU330	33
C544	ECEA1VU4R7	4.7
C546	ECEA1HU100	10
C547 ⚠	ECKDKC103PF	0.01
C548	ECEA1HU010	1
C549, 550 Ⓢ	ECKD1H103ZF	0.01
C551	ECQM1H104JZ	0.1
C552	ECQE1104KN	0.1
C553, 554 Ⓢ	ECKD1H103ZF	0.01
C555, 556 Ⓢ	ECKD1H103ZF	0.01

Ref. No.	Part No.	Description
INTEGRATED CIRCUIT		
IC501	SVI1001A	Power Amp.
IC502	AN7072N	Muting & Protection
IC503	SVITA7318P	Meter Amp.
TRANSISTORS		
Q501, 502	2SC1583F	Differential Amp.
Q503, 504, 511 512, 515 Ⓢ	2SC1685−QNC	Current Stabilize, Motor Switching
Q505, 506	2SA992E	Pre Drive
Q507, 508	2SC2631−R	Pre Drive
Q509, 510	2SA1123−R	Pre Drive
Q513, 514 Ⓢ	2SA722−S	Switching
Q516	2SC1384NC−R	Regulator
DIODES		
D502, 505~508 511, 512	MA165	Switching
D509, 510	MA167	Switching
D513	MA4062M	6.2V, Zener
D514	MA4150M	15V, Zener

Ref. No.	Part No.	Description
DIODES		
D515	MA4075H	7.5V, Zener
D516 Ⓢ ⚠	SVDSR1K2	Rectifier
D517~520 ⚠	SVDS2V20	Rectifier
D521	LN230RPP	L.E.D. (Power Indicator)
COILS		
L501, 502	SLQY07G−30	Choke
L503, 504	SLQX181−1D	Choke
L505, 506	SLQX400−D	Choke
IC Protector		
ICP1	SRUF10	IC Protector
ICP2, 3	SRUF50	IC Protector
TRANSFORMER		
T501 ⚠	SLT7A003−W	Power Source
VARIABLE RESISTORS		
VR501, 502	EVNE4CA00B12	Meter Adj, 100Ω(B)

Ref. No.	Part No.	Description
THERMAL DETECTOR		
PS501	SRPBB47101	Tempera Ture Detector (120°C)
METER		
	SSM181−2	Peak Powe Meter
LAMP		
PL501~503 ⚠	XAMS6Q17−1	Peak Power AC 12V, 110mA
FUSES		
F1 ⚠	XBA2C08TR0	250V, T800mA
SWITCHIES		
S501 ⚠	SSH1057	Power Source
S502	SSH1135	Super Bass

Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
1 ○	SGWA007P-SX	Front Panel Ass'y (Silver Type) (1)
1 Ⓚ	SGWA007P-KX	Front Panel Ass'y (Black Type) (1)
2 ○	SGXA007P-SN	Front Sub Panel Ass'y (Silver Type) (1)
2 Ⓚ	SGXA007P-KN	Front Sub Panel Ass'y (Black Type) (1)
3	SHR415	Lock Pin (1)
4	SBC619	Button, Power Source (1)
5	SUB177	Rod, Power Switch Button (1)
6	SUW2117	Bracket, Power Switch (1)
7	SJT347	Holder, Fuse (4)
8	SBC621	Button, Super Bass (1)
9	SMP365	Reflector Plate (1)
10	SMX429	Insulation Cover (2)
11	SUW2119	Bracket (1)
12	SJS9327	Socket (2)
13	SJF4431-1	Terminal Board (1)
14 Other areas	SHR127	Bushing, AC Cord (1)
15 Other areas ⚠	SJA138-3	AC Cord (1)
16	SWPA007PN1	Cord (1)
17	SHR321	Bushing, Cord (1)
18 ○	SGPA007P-SG	Rear Panel Ass'y (Silver Type) (1)
18 Ⓚ	SGPA007P-KG	Rear Panel Ass'y (Black Type) (1)
[18-1	[SKL292	Foot (4)
19	SHE174	Fan Motor (1)
20	SUS271	Spring (1)
21	SHG6267	Rubber (4)
22	SMEUZ600-KM	Case, Motor (1)
23	MMN6C2RKMS	Motor (1)
24	SME97-1	Cover, Motor Case (1)
26	SDX323	Spacer (1)
27	SHR415	Lock Pin (1)
28	SMX846	Insulation Plate (1)
29	SMX847	Insulation Plate (1)
30	SUW2855	Bracket, Fuse P.C.B. (1)
31	SJT347	Holder, Fuse (2)
32	SHR415	Pin (2)
33	SMX851	Insulation Plate (1)
34	SMX853	Insulation Plate (1)
SCREWS		
N1 ○	XSN3+6S	⊕3×6 (Silver Type) (2)
N2 Ⓢ	XTB3+8BFZ	Tapping, ⊕3×8 (4)
N3 ○	XTBS3+8FFN1	Tapping with Detent, ⊕3×8 (Silver Type) (1)
N3 Ⓚ	XTBS3+8FFZ1	Tapping with Detent, ⊕3×8 (Black Type) (1)
N4 ○	XTBS3+8BFN1	Tapping with Detent, ⊕3×8 (Silver Type) (7)
N4 Ⓚ	XTBS3+8BFZ1	Tapping with Detent, ⊕3×8 (Black Type) (7)
N5 ○	SNE2111-1	(Silver Type) (10)
N5 Ⓚ	SNE2111	(Black Type) (10)
N6 ○	XTW3+8EFN	Tapping, ⊕3×8 (Silver Type) (4)
N6 Ⓚ	XTW3+8EFZ	Tapping, ⊕3×8 (Black Type) (4)
N7 Ⓢ	XTB3+14BFZ	Tapping, ⊕3×14 (2)
N8 Ⓢ	XTB3+10BFZ	Tapping, ⊕3×10 (4)
N9 ○	XSN3+6BNS	⊕3×6 (Silver Type) (2)
N9 Ⓚ	XSN3+6BVS	⊕3×6 (Black Type) (2)
WASHERS		
N11 ○	XWA3BFN	Spring Washer φ3 (2) (Silver Type)
N11 Ⓚ	XWA3BFZ	Spring Washer φ3 (2) (Black Type)
N12	XUC2FT	Retaining Ring, Type E (1)



A	①
B	④ ⑤⑥ ㉙ ㉛ ㉘㉗ ⑨
C	(18-1) ⑧ (18-1)

ED VIEW (Power Amplifier Unit Parts)

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Value
3.3
0.1
0.1
6800
1
0.01
3.3
3.3
33
0.01
33
33
4.7
10
0.01
1
0.01
0.1
0.1
0.01
0.01

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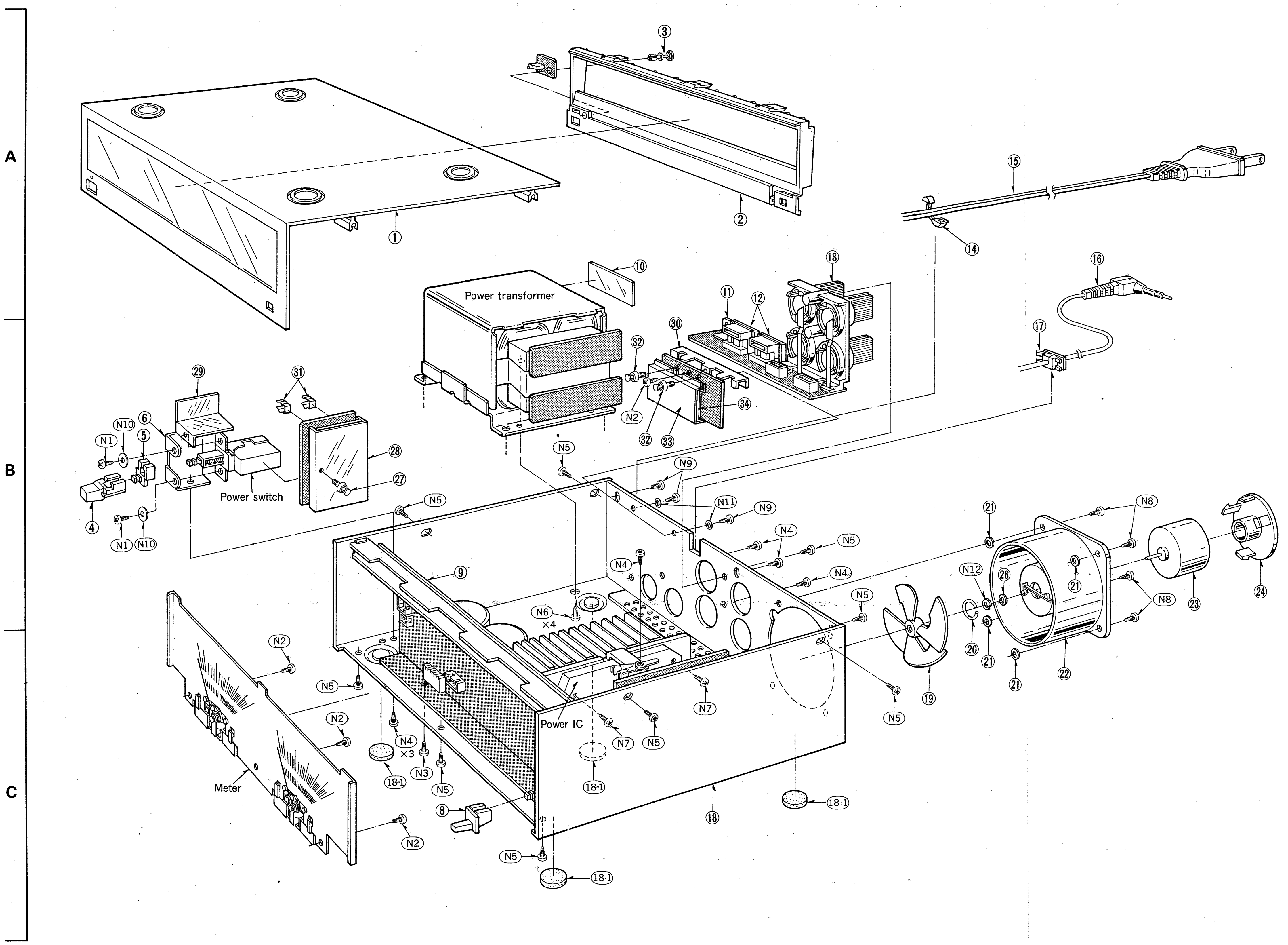
Ref. No.	Part No.	Description
CABINET and CHASSIS PARTS		
1 ○	SGWA007P-SX	Front Panel Ass'y (Silver Type) (1)
1 Ⓚ	SGWA007P-KX	Front Panel Ass'y (Black Type) (1)
2 ○	SGXA007P-SN	Front Sub Panel Ass'y (Silver Type) (1)
2 Ⓚ	SGXA007P-KN	Front Sub Panel Ass'y (Black Type) (1)
3	SHR415	Lock Pin (1)
4	SBC619	Button, Power Source (1)
5	SUB177	Rod, Power Switch Button (1)
6	SUW2117	Bracket, Power Switch (1)
7	SJT347	Holder, Fuse (4)
8	SBC621	Button, Super Bass (1)
9	SMP365	Reflector Plate (1)
10	SMX429	Insulation Cover (2)
11	SUW2119	Bracket (1)
12	SJS9327	Socket (2)
13	SJF4431-1	Terminal Board (1)
14 Other areas	SHR127	Bushing, AC Cord (1)
15 Other areas ⚠	SJA138-3	AC Cord (1)
16	SWPA007PN1	Cord (1)
17	SHR321	Bushing, Cord (1)
18 ○	SGPA007P-SG	Rear Panel Ass'y (Silver Type) (1)
18 Ⓚ	SGPA007P-KG	Rear Panel Ass'y (Black Type) (1)
[18-1	[SKL292	Foot (4)
19	SHE174	Fan Motor (1)
20	SUS271	Spring (1)
21	SHG6267	Rubber (4)
22	SMEUZ600-KM	Case, Motor (1)
23	MMN6C2RKMS	Motor (1)
24	SME97-1	Cover, Motor Case (1)
26	SDX323	Spacer (1)
27	SHR415	Lock Pin (1)
28	SMX846	Insulation Plate (1)
29	SMX847	Insulation Plate (1)
30	SUW2855	Bracket, Fuse P.C.B. (1)
31	SJT347	Holder, Fuse (2)
32	SHR415	Pin (2)
33	SMX851	Insulation Plate (1)
34	SMX853	Insulation Plate (1)
SCREWS		
N1 ○	XSN3+6S	⊕3×6 (Silver Type) (2)
N2 Ⓢ	XTB3+8BFZ	Tapping, ⊕3×8 (4)
N3 ○	XTBS3+8FFN1	Tapping with Detent, ⊕3×8 (Silver Type) (1)
N3 Ⓚ	XTBS3+8FFZ1	Tapping with Detent, ⊕3×8 (Black Type) (1)
N4 ○	XTBS3+8BFN1	Tapping with Detent, ⊕3×8 (Silver Type) (7)
N4 Ⓚ	XTBS3+8BFZ1	Tapping with Detent, ⊕3×8 (Black Type) (7)
N5 ○	SNE2111-1	(Silver Type) (10)
N5 Ⓚ	SNE2111	(Black Type) (10)
N6 ○	XTW3+8EFN	Tapping, ⊕3×8 (Silver Type) (4)
N6 Ⓚ	XTW3+8EFZ	Tapping, ⊕3×8 (Black Type) (4)
N7 Ⓢ	XTB3+14BFZ	Tapping, ⊕3×14 (2)
N8 Ⓢ	XTB3+10BFZ	Tapping, ⊕3×10 (4)
N9 ○	XSN3+6BNS	⊕3×6 (Silver Type) (2)
N9 Ⓚ	XSN3+6BVS	⊕3×6 (Black Type) (2)
WASHERS		
N11 ○	XWA3BFN	Spring Washer ϕ3 (Silver Type) (2)
N11 Ⓚ	XWA3BFZ	Spring Washer ϕ3 (Black Type) (2)
N12	XUC2FT	Retaining Ring, Type E (1)



A	① ⑩ ③ ② ⑬ ⑭ ⑮
B	④ ⑤⑥ ㉙ ㉛ ㉘㉗ ⑨ ㉜㉜ ㉝ ㉚⑪㉞ ⑫ ㉑㉖ ⑰㉑⑯ ㉓ ㉔
C	(18-1) ⑧ (18-1) ⑱ (18-1) ⑲ ⑳㉑㉑ ㉒

Printed in Japan
841001150 Ⓗ YK/IM/KS/TN